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Gas, Oil, and Burning Fluid.

The Lawrence (Mass.) *Courier* contains a table which embraces the results of several experiments, by a scientific gentleman, to determine which was the most economical illuminating agent. Of coal gas equal to the light of five wax candles, 1.75 cubic feet were consumed per hour; kerosene oil, five-eighths of an ounce; sperm oil, one and one-eighth of an ounce; common burning fluid (alcohol and camphene), two and a half ounces; lard oil, one and three-eigths of an ounce. The cost per hour for each, in fractions of a cent, is stated to be: Coal gas, 0.762 (at $3 50 per thousand feet, one dollar higher than in New York); kerosene oil, 0.883; sperm oil, 1.000; burning fluid, 1.350; lard oil, 1.420; coal gas being made out to be the cheapest of these agents for artificial illumination. But the *Courier* states that there is a substance called naphthaloyd, made in Boston, which is cheaper than gas, and in regard to which information is solicited. We cannot tell what it is, but infer from its name that it is naphtha mixed with alcohol. So far from common coal gas being cheaper than kerosene or burning fluid, it is held to be much more expensive. Were burning fluid not so dangerous it would be used in preference to all the oils, because it is more cleanly and can be burned in common lamps.

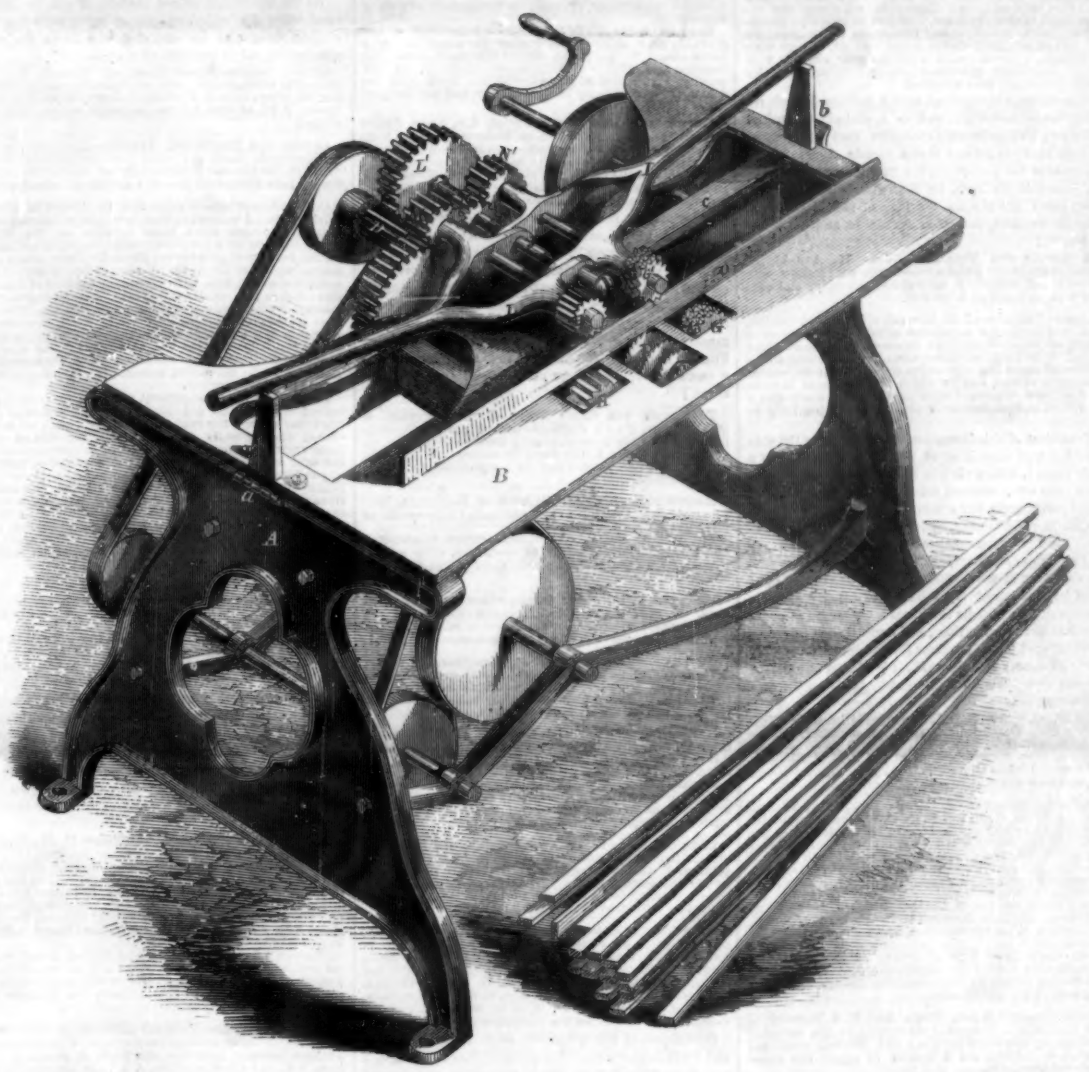
The General Admiral.

This splendid steam-frigate, built for the Emperor of Russia, is receiving the last finishing touches, the machinery and boilers being all on board. The riggers, carpenters and decorators are busy in getting her ready or sea. Her engines and entire machinery are said to be the best finished as well as the most expensive ever put on board any vessel in the United States, costing some $300,000. Instead of white oak gun-carriages, which the contract called for, Mr. Webb, her builder, has substituted a more costly material—mahogany, of which all the frames are composed, the axles only being white oak, and the trucks lignumvitæ. She will be ready for the engineers' trial trip in a few weeks. After being carefully tested she will proceed to Cronstadt to take her position as the flagship of the Russian navy, where, we have no doubt, she will do honor to her American builders and engineers.

American Museum of Zoology.

The Legislature of Massachusetts has granted $100,000 in aid of the museum of comparative zoology which Professor Agassiz has founded at Cambridge. It is to be paid in instalments from the sale of State lands; but private subscriptions of equal amount to that of the State grant must be obtained before the latter will be paid.

HANCOCK'S LATHE-SAWING MACHINE.



Our illustration is a perspective view of this machine, which possesses many advantages and peculiarities that will be seen as we proceed in our description.

A is the frame, having on its top the cast-iron table, B, well planed, and hung on hinges, *a*, which allow it to be raised so that the saws can be shipped from their mandrel. B is held down by a spring catch, *b*, and thrown up automatically by a flat spring, *c*, when *b* is withdrawn. The table is partly open. C is the saw-mandrel, carrying the saws, F, and a shifting-pulley (not seen). The saws are slipped upon the mandrel and kept at the proper distance apart by loose collars, being held firmly in place by a clamp nut on C. By having the saws secured in this manner they can be readily adjusted to cut any required thickness of laths, fencing slats, sash and blind stuff, or any other strips or slats required, by placing a greater or less number of collars between the saws; and a greater or less number of saws can be employed as desired. The saws, when on the mandrel, extend up through the table far enough to cut entirely through the lath bolt, and hence will be seen the necessity for having the table hinged as described, so that it may be raised clear of the saws when it is necessary to adjust them. G G′ H H′ are two sets of feed rollers placed before and behind the saws. The front set, G G′, are dressed circumferentially with teeth which run in spiral lines, the spirals of the upper one, G′, having to run in opposite directions to those on G, as the rollers turn in opposite direction. The effect of the spiral set of the teeth is to crowd the lath-bolt laterally at the same time that they feed it forward, thus slightly enlarging the kerf and preventing the heating of the saw. The rollers, H H′, are dressed with spur teeth in the ordinary manner, and they take hold of the bolt after its end passes beyond the saws and keep it in a straight line until the saws have made a cut from end to end. The upper roller of each piece is hung in a swinging-frame, L, which is hinged to a central shaft, J, that has a pinion, N, and a spur wheel, L′, on its outer end, the spur wheel gearing with the long barrel cog-wheel, D, and the pinion with pinions M and N′, of the shafts of the feed rollers, G′ H′. By this arrangement of the upper feed rollers, it will be seen that they can rise and fall to suit any desired thickness of lath, and yet remain always in gear. O is the stationary guide or gage against which the lath-bolt is fed forward, and by which the saws are compelled to cut the latter true and uniform. This gage projects up from the surface of the table and gradually recedes from the face of the saw from its front to its rear end, thus providing room for the lath to gradually move laterally from the bolt after its forward end has escaped by the rear saws, and thus enlarge the kerf sufficiently to allow the rear teeth of the saw to run in the kerf without being heated by the friction of contact. This recession cannot well be shown in so small a drawing as ours. The machine thus constructed is driven by the system of gearing, belts and pullies, or any other more suitable. The lath machines most commonly used at present consist simply of a frame and table, with a single saw on the mandrel, and with a gage running parallel with the face of the saw projecting from the table. This improved feed prevents any irregularity, which is too often the result of hand-feeding; and by keeping the stuff close to the gage, gives a regularity to the thickness of lath seldom attained by other methods. The waste of material is very small, and by increasing the number of saws, an immense number of laths can be cut with only one person attending. It is the invention of E. H. Hancock, of Augusta, Ga., and was patented January 4, 1859. The patent has been assigned to W. & R. Schley, of the same place, who should be addressed for further particulars.

Issued from the United States Patent Office

FOR THE WEEK ENDING APRIL 13, 1869.

[*Reported officially for the Scientific American.*]

*** Circulars giving full particulars of the mode of applying for patents, size of model required, and much other information useful to inventors, may be had gratis by addressing MUNN & CO., Publishers of the SCIENTIFIC AMERICAN, New York.

MACHINE FOR NOTING THE SUMS OF NUMBERS ADDED.—J. W. Arndt, of Green Bay, Wis.: I claim the arrangement of three indexes, c m and k, on a dial marked with units, hundreds and thousands, in combination with the swivel arm, d, the ratchet wheel, D, and with the pinions, c h and i, and with the gear wheels, F G H and I, or their equivalents, to operate substantially as and for the purpose specified.

[A swivel-arm is arranged with a pointer in such relation to a ratchet-wheel and to a dial-plate, marked with units, hundreds and thousands, that by turning the arm until the pointer is at a certain figure in the unit scale of the dial-plate, the ratchet-wheel is rotated, which in its turn, by gear-wheels and pinions, moves three indexes on the face of the dial, one of which shows units, the other hundreds and the other thousands.]

PROJECTILE FOR FIREARMS.—Wm. H. Arnold, of Washington, D. C.: I claim combining with hollow base projectiles, B, a shaft, R, split at its extremity, and otherwise constructed as described.

GAGING THREADS.—J. E. Atwood, of Mansfield Center, Conn.: I claim the apparatus consisting of a series of rollers, or other equivalent devices, so arranged and applied that their surfaces combine to constitute a number of gages through which the thread is conveyed, by suitable means, and by which its thickness is measured at two or more points at the same time, and a multiplied measurement is obtained, substantially as described.

[The object of this invention is to determine the size or thickness of threads or of the several portions of a single thread, with a view to their being sorted according to their size, more especially for the sorting of silk thread preparatory to its being manufactured into sewing-silk by the doubling, or trebling and twisting process. The invention consists in a series of rollers, or their equivalents, so arranged and applied as to constitute a number of gages through which the thread to be sorted or measured is to be conveyed by suitable means, and by which its thickness is measured at several points at the same time, and a multiplied measurement obtained which provides for the detection of very slight differences in size, which it is almost impossible to detect by a single measurement by the most delicate apparatus.]

GAS REGULATORS.—S. D. Baldwin, of Milwaukie, Wis.: I claim, first, The annular recess, or chamber, W, for the purpose stated.

Second, And in combination with a regulator having such recess, I claim the union piece, u, arranged and operated as set forth.

SHUTTER OPERATOR.—J. K. Barker, of Lawrence, Mass.: I do not claim the strap, C, or the ornamental covering, D, or any particular kind of fastening, as the same may be accomplished in many ways, as by loops in the cord, links of a chain, or by a wheel with cog and and catch, but I have adopted the strap as the most convenient of known ways of fastening a cord, it admitting an ornamental covering.

But I claim the use of the block or arc, A and B, of convenient size to be fastened to the blind, or building, as described in the specification, and for the purpose described.

I also claim the design of arranging the pipes and cords, and the design of opening, shutting and fastening exterior blinds, in the inside of buildings, by means described in the specification.

DOVETAIL JOINTS FOR WOOD, &c.—F. S. Barnard, of New York City: I do not limit myself to the material in which my aforesaid tongued and grooved sectional dovetail is formed, but I intend to apply the same whenever available.

But I claim the tongued and grooved sectional dovetail joint to connect wood or other material together, in substantially the manner specified.

STEREOSCOPE CASE.—Alex. Beckers, of New York City: I claim, first, The picture frames, E, constructed of elastic wire, or of any other suitable substance, and provided with a hook, C, for adjusting the pictures in the center, substantially as described.

Second, I claim the arms, H, arranged in such relation to the pictures, that by the motion of the arms, each of the pictures, when brought before the eye-glasses, can be moved to and from the same, until it comes into the proper focus, substantially in the manner specified.

[This is another improvement in the cases of these beautiful pictures, tending to bring out the beauties more decisively, and to admit of greater variety in their exhibition. The claim explains the invention.]

PUMP.—A. Beeler and J. B. Christian, of Mount Carroll, Ill.: We claim the combination of two sliding cylinders with each other, and with a third stationary cylinder, arranged and operating substantially in the manner and for the purposes specified.

SELF-PRIMING GUM LOCK.—F. . Bell, of Washington, D. C.: I claim the combination of mechanical devices, substantially as described, with the slide, E, by means of which the latter can be either kept rigidly in position over the mouth of the magazine chamber, thus intercepting all communication with the latter, or be thrown in gear with the lock plate, so that by cocking the hammer, it will be operated in such manner as to force a cap from the magazine chamber into the discharge chamber of the hammer on the descent of the latter upon the nipple for the purposes set forth.

GRAIN SEPARATOR.—Jacob Benner, of Alleghany, Pa.: I claim, first, The arrangement of the receiving chamber, D, separating chamber, C, collecting chamber, B, and gathering chamber, E, when used in connection with the suction fan, n, as described and represented, and for the purpose set forth.

Second, The arrangement of the shutes, e, valves, f, when used in connection with the conical or convex bottoms, h, of the chamber, B, as described and for the purpose set forth.

SMUT MACHINES.—Jacob Benner, of Alleghany, Pa.: I claim, first, The use of plate, with the cone, S, and the opening, o, between the lattice work, v, and plate, p, when used in connection with the suction fan, n, the beaters, q, on drum, r, and the flues, D F, and e, as described and for the purpose set forth.

Second, The arrangement of the chambers, A B C and L, and the flues, D F and e, when used in combination with suction fan, n, lattice work, v, opening, o, plate, p, with cone, S, and beaters, q, on drum, r, as described and for the purpose set forth.

Third, The use of the straight or perpendicular part, X, with cap, 7, of the casing, y, of chamber, A, for the purpose of forming an eddy in chamber, L, as described and for the purpose set forth.

BREAD CUTTER.—Hiram Berdan, of New York City: I claim the arrangement of certain devices, viz., the adjustable cavities, or their equivalents, in combination with the cutting-off knife, or its equivalent, and the large cylinder and piston, or their equivalents, and the so connecting the several parts, that the amount of dough displaced by the piston shall be exactly equal to the cubic contents of the cavities presented for filling between each stroke of the cutting-off knife, substantially as and for the purpose specified.

I also claim the devices for rounding up the loaves, as they fall from the cavities, consisting of the grooved roller and shield, or their equivalents, the roller having a vibratory motion, in the manner and for the purpose specified in combination with the preceding arrangement of devices claimed, substantially as and for the purpose specified.

ATTACHING THILLS TO VEHICLES.—Douglas Bly, of Rochester, N. Y.: I do not claim the hook form of the block, D, nor the mere use of a shoulder to sustain the pressure of the thills, or pole, in backing, in any other connection.

But I claim the construction and arrangement of the movable piece or block, E, having the notch, G, and a screw shank in half, and slightly wedged-shaped, in combination with the oblique shoulder, H, on the notched screw shank, E, and with the hook, J, of the block, D, substantially in the manner and for the purposes set forth.

DEVICE FOR DRAWING SAWDUST, &c., FROM STAVE MACHINES.—Michael Brayer, of Rochester, N. Y.: I do not claim a reciprocating knife-gate working in the arc of a circle, for such device has been previously used.

But I claim the employment or use of the levers, n n, in combination with the inclined bed, A, arranged substantially as and for the purpose set forth.

[There is a class of stave-cutting machines in which a knife, having a curvilinear movement, is employed for cutting the staves in curved form direct from the bolt. The above invention, which is an improvement on that class, consists in a peculiar manner of arranging the knife-gate, whereby it is made to work perfectly true, and irregularities, hitherto occasioned in other machines by wear, avoided. There are also levers fitted in the bed of the machine to aid in removing the "waste" or refuse pieces of the bolts from the machine.]

FASTENING FOR SHIRT STUDS.—Barnes Clayton, of Philadelphia, Pa.: I claim the armed post, B, in combination with the cross-piece, D, fixed to the stem, C, of the front piece, A, the same operating together substantially in the manner and for the purpose set forth and described.

HARVESTERS.—Levi H. Colburn, of Baltimore, Md.: I do not confine myself to any particular dimensions or pitch of the spiral.

But I claim the spiral-revolving cutter, constructed and arranged substantially as described, with a continuous opening through its centre, for the purpose specified.

VARIABLE CUT-OFF FOR STEAM-ENGINES.—J. M. Colman, of Milwaukie, Wis.: I claim combining the double-seated balanced or equilibrium valve with the ordinary slide valve of steam-engines, as set forth.

COTTON SEED-PLANTERS.—J. P. Crutcher, of Silver Spring, Tenn.: I claim the rotating hollow chamber, C, constructed as described, in combination with the clearer and agitator, f, and swinging-frame, B, substantially as and for the purposes set forth.

HERNIAL TRUSSES.—Josiah Danforth, of Middletown, Conn.: I do not claim the crossing of the springs, 44.

But I claim uniting, by a screw or rivet, the two springs, 44, at a given point, 2, from the end of each, with pads attached, which can be adjusted to the body without any additional spring, and thereby making the arrangement and combination of the two springs, 44, with their respective pads, a truss of itself.

CHURN.—Edwd. L. Dorsey, of Green Wood, Ind.: I claim the employment of the trundle wheel, C, staff, E, pitman, F, and cog-wheel, H, substantially in the manner herein shown, for the purpose of giving at the same time a vertical and a circular motion to the dashers for churning butter, as is fully set forth.

GUIDE ATTACHMENT FOR VEHICLES.—Nathl. Drake, of Newton, N. J.: I claim the slotted pole strap bar, F, and catch, G, placed on and connected with the draft pole, D, respectively as shown, in connection with the cords, c c, attached to the catch, G, passing through the uprights, E, and shieves, d d, of the horse-collars, and attached to foot levers, H H, or their equivalents, substantially as and for the purpose set forth.

[The object of this invention is to prevent vehicles and draft implements being casually thrown to either side of their regular or direct course by any lateral movement of the team. The invention is more especially designed to be applied to agricultural implements, such as seeding-machines, cutwaters, and the like, when it is essential that the implement be drawn in straight lines, and also where it is essential that a short or quick deviation from a direct curve be made. The invention places the implement or vehicle so far as draft is concerned under the complete control of the driver, and it consists in having the front end of the draft-pole connected to the strap-bar by a catch which is connected by cords to levers placed within the reach of the driver's feet.]

SEEDING-MACHINES.—John B. Duane, of Schenectady, N. Y.: I claim, First, The arrangement of the vibrating toothed board, G, and agitating bar, E, connected by the lever, H, in connection with the adjustable slide, f, and perforated bottom, d, and grooved roller, F, the whole being arranged to operate as and for the purpose set forth.

Second, The roller, H', when attached to the frame, A, by the bent levers, I I, and connected with the caster wheels, M, through the medium of the bars, J J K K L L, arranged substantially as shown for the purpose set forth.

[The parts composing the seed-distributing device, are peculiarly arranged, whereby seed of different kinds, having varying sizes and forms, may be sown broadcast in a very even manner and without the liability of the device becoming choked or clogged. The invention also consists in the use of peculiar teeth, arranged relatively with the seed-box, whereby the ground is perfectly prepared or furrowed to receive the seed, and the seed properly covered with earth directly after being dropped or sown. The invention also consists in a novel means of applying a roller to the machine and connecting it to wheels also attached to the machine in a peculiar way, whereby the roller is permitted to "roll in" the seed and at the same time serve as a means for transmitting power to the working parts of the machine, and also to assist in raising and lowering the frame of the same so as to regulate the position of the teeth relatively with the earth as may be required. The driver's seat is so connected to the machine as to counterpoise, in a measure, the machine as it is drawn along. This machine performs five operations; it cultivates the ground after plowing, combs the ground with a fine toothed harrow to sow grass seed, and rolls down.]

ARTIFICIAL LIMBS.—Richard H. Dutton, of Philadelphia, Pa.: I do not claim the invention of artifical limbs, or of their several parts thereof, generally.

But I claim, first, The use of the hardened cylindrical tube, A, in constructing joints for artificial limbs, substantially as and for the purposes set forth and described.

Second, The use of the feather spring, D, when so constructed and arranged, to operate substantially as set forth.

Third, The use of the bolt, E, and pulleys, F F, when so constructed and arranged for the purpose described.

Fourth, The use of the spring, G, when so constructed and applied to act, substantially as and for the purpose set forth and described.

OIL CANS FOR LUBRICATING.—Thos. Filds, of Media, Pa.: I claim attaching the oil-can, D, by means of a clamp, B, to a handle, A, and using, in connection therewith, the lever or bar, C, actuated by the cord, l, and slide, k, or their equivalents, substantially as and for the purpose set forth.

[By the use of this oil-can machinery can be lubricated without a ladder, and the complex parts reached without danger to the operater who holds the can, ejecting the oil by pressure on a small bar.]

GRAIN DRILLS.—James Ford, of Wabash, Ind.: I claim the arrangement and combination of the seed-box, E, lever, N, rod, P, slide, S, lever, M, and tilting-frame, T T', as and for the purposes shown and described

COVERS FOR TRAVELING TRUNKS.—Eldridge Foster, of Hartford, Conn.: I claim the air-inflated trunk cover, in the manner substantially as set forth and for the purpose described, as a new article of manufacture.

COFFEE-ROASTERS.—Washington L. Gilroy, of Philadelphia, Pa.: I am aware that reversibly inclined concentrating-plates have been applied to the inner circumference of a revolving coffee-roasting cylinder, for the purpose of preventing the coffee from accummulating in piles at the heads of such cylinder during the operation of roasting, as in Heerman's patent of Sept. 7, 1858; but as this result cannot take place in a spherical roaster during a rotary motion upon its axis, because, from its shape, the contained coffee must necessarily gravitate to it and slide along the middle of its bottom, or the part nearest to the fire, an arrangement therein of concentrating-plates would be worse than useless. Therefore, I do not claim, broadly, the use of plates or guides in coffee-roasters.

But I claim the arrangement of the two sets of the united staying and guiding-pieces, B B and B' B', on the inner side of the said hollow sphere, each set being placed diametrically opposite to the other, and with their apexes in the direction of the rotary motion of the said sphere, that they may, in succession, operate in combination with the interior spherical curve of the latter, during its rotary motion, to remove the coffee from the middle of the bottom of the said sphere toward the ends thereof, and essentially permit it to fall gradually over the edges of the said staying and guiding-pieces into the middle of the bottom again, as specified, thus rendering the said spherical coffee-roaster perfect in its operation, as described.

CALLIPERS.—Fayette Gould, of Huntington, N. Y.: I do not claim a stationary and sliding jaw fitted to a graduated bar, for such device has been previously used for measuring and is well-known.

But I claim, in combination with the jaws, B C, and graduated bar, A, the dial plate, f, and index, e, the latter being actuated by the pinion, c, and rack, b, substantially as and for the purpose set forth.

[The object of this invention is to obtain by means of this implement a more accurate measurement than usual, and the invention consists in having an index attached to the sliding-jaw, and operated by a rack and pinion and the movement of the jaw, so as to give very minute fractional parts of an inch or other distances marked on the bar on which the moveable or sliding-jaw works.]

CHAIRS FOR RAILROAD RAILS.—Henry H. Graham, of Paterson, N. J.: I do not claim a chair taking the side of the rail and coming up to the top thereof, neither do I claim a cross-key or bolts uniting the rail by the use of fish-bars, or similar devices; but I do not know of any previous instance in which the horizontal binder and vertical key-spike have been used to bind the ends of the rails into a chair having a vertical side and fitted to receive the rail.

Therefore I claim the horizontal binder, d, and vertical wedge, e, constructed substantially as set forth, in combination with the chair that receives and sustains the ends of the rails, in substantially the manner described and shown.

CARPET-FASTENER.—Marshall Granniss, of Waterbury, Conn.: I claim, as an improved article of manufacture, a carpet-fastener, composed of a plate, B, provided with ears, d d, and a fork or plate, A A', having prongs, a a, as shown and described.

[A forked piece of sheet metal or metal wire is jointed to a plate which is permanently secured to the flooring, and which serves to retain the wire in a horizontal position by means of two ears which project from the plate sufficiently to catch over a small steel rod that is attached crossways to the forked piece of sheet metal, or to catch over the arms of the folded metal when so that it is easy to depress or raise the fastener; but if a strain be exerted in a horizontal direction after it has been depressed it will not move, but will hold the carpet perfectly secure.]

JOINT-BODIED BUGGIES.—Edwin J. Green, of Valparaiso, Ind.: I claim connecting the front axle of a carriage to the body by means of a swivel-joint, composed of shaft, G, king-bolt, E, turning-plate, D, and stationary-plate, C, when the latter is secured directly to the body of the carriage, substantially in the manner and for the purpose described.

I also claim connecting the front springs to the coupling or reach by means of the shaft, G, which is welded, or otherwise secured to said springs, as represented.

I also claim, in combination with a hinged carriage body, the braces, P and Q, for the purpose of preventing the rear axle from being thrown angling when the carriage is loaded heavier on one side than on the other, substantially in the manner described.

MACHINE FOR THREADING SCREWS.—Ira Griggs, of Utica, N. Y., assignor to the Utica Screw Manufacturing Company: I claim, first, So applying the rest, E, and controlling it by a spring, d, or its equivalent, as to provide for its longitudinal movement in and independently of the carriage, substantially as and for the purposes described.

Second, Fitting the cutter stock with an eccentric, m, operated by means substantially as described, to provide for it a movement for tapering the point of the screw, independent of the vibrating movement to feed the cutter, in cutting the other portion of the screw, as set forth.

Third, And though I do not claim, broadly, a two-pointed cutter, I claim the construction of the cutter, with two points, at such a distance apart as to straddle two turns of the thread and the intervening space, substantially as and for the purpose set forth.

[This invention consists in a certain mode of applying and controlling the operation of the rest which supports the screw-blanks during the threading operation, whereby better provision is made for the support of the blanks—more especially when they are short—in cutting at or near their points. It further consists in a certain contrivance for depressing the point of the cutter as it approaches the points of the blanks in such a manner as to make it cut the screws with tapering points. It further consists of a certain construction of the cutter, whereby it is made to produce a cleaner cut and a truer thread than the cutter ordinarily employed.]

MACHINE FOR NICKING HEADS OF SCREWS.—Ira Griggs, of Utica, N. Y., assignor to the Utica Screw Manufacturing Company: I claim the arrangement of the holding-dies and feeding-slider in a carrier, F, which swings upon the same shaft which carries the cams for operating the said dies and slider, and operates in combination with the notching-saw, substantially as described.

And I also claim the discharging of the notched blanks from the holding-dies, in a lateral direction, by the introduction of the new blanks into the said dies, as set forth.

[This invention consists in novel means of presenting the screw-blanks to the notching-saw: and it also consists in a certain novel mode of discharging the blanks from the machine after their notches have been cut.]

MACHINES FOR TAPERING STICKS.—H. S. Hall, A. D. Hunt and C. J. Winchester, (assignors to H. S. Hall, A. D. Hunt and C. E. Jefford,) of Jamestown, N. Y.: We claim the rotating cylinder, C, provided with the adjustable bearings, j j, and cutter, k, one or more, when said bearings and cutter are operated through the medium of the plate, D, bar, E, with inclined bar, q, attached, and the rack and pinion, a b, in connection with the springs, e, or their equivalents, substantially as described.

[In this invention a hollow rotating-cylinder is used, provided with radial sliding-bearings and one or more cutters and two feed rollers, operated automatically from the driving or power shaft, whereby the snaths, after being properly steamed and bent, may be expeditiously finished or rounded, or cut in taper form.]

ELASTIC POLISHING-WHEEL.—Loren Hale, of Milford, Mass.: I claim, as an improvement in wheels for grinding and polishing, the hollow elastic ring, operating as set forth, for the purpose specified.

STIRRUPS.—Wm. J. Hamersley, of Hartford, Conn.: I claim as a new, useful and improved article of manufacture, in a saddle stirrup, the employment of the tube, C, spring, E, spindle, D, or their equivalents, for the purpose substantially as described.

BED-BOTTOM.—H. P. Hart, of New Woodstock, N. Y.: I claim the arrangement described of the springs, b, hooks, a, and rails or rods, g, in combination with each other, by which the turns of the hooks are made to form shoulders to support the springs against the pressure of the rods, g, when these are made to bear directly upon both ends of the springs, as described.

PIERS OR BREAKWATERS.—Chas. T. Harvey, of Marquette, Mich.: I do not claim, of itself, a crib or frame of timber filled with stone or other material, and to be sunk on the bed of a river, lake, or sea, as such is well-known to engineers.

But I claim the combination and arrangement of the adjustable bottom-fender or crib, H, with the pier constructed substantially in the manner as specified, the said fender being hinged or so applied to the pier as to be capable of adapting itself to the slope of the bottom in front of the vertical side of the pier, and of protecting the foundation of such pier from the corroding action of currents, the whole being substantially as specified.

HORSE COLLARS.—Thos. Harvey, of Baltimore, Md.: I claim the arrangement of the parts forming the body of a horse collar, and the construction of an underback in such form as that the outer edges of the underback, and the face of the collar, and the outer back are all made perfectly secure by an under seam, and at the same time the under seam is hid from view and wear, as also showing the stitched edge of the outer back in its proper place, all being accomplished previously to the filling of the collar, instead of putting on the outer back after the collar is filled, as in the manner in putting together a care collar.

HORSE-COLLARS.—Thomas Harvey, of Baltimore, Md.: I claim the construction and addition of a fancy welt to a welted horse-collar, the same being perfectly adapted to its location being alongside of the usual welt, and so formed as to bring it directly down on the face of the collar, and thus showing a stitched edge, as also being in the proper place to prevent the hame-tug from cutting into the collar, as set forth.

SEWING-MACHINES.—Wm. Cleveland Hicks, of Boston, Mass.: I claim, First, Transmitting the motion to the needle-stock from that cam or crank on the main shaft which drives the said stock, by means of a pinion interposed between the connecting rod and the needle-stock, and combining the two by rack-teeth cut on each, and meshing into said pinion, whereby I am enabled to impart to the needle-stock the precise motions of said cam or crank as set forth.

Second, I claim setting the feed-wheel, or other feeding mechanism and the shuttle-race, in such position beneath the sewing-table, that the direction in which the materials will be fed and sewed shall be in a line parallel with the bracket-arm, and toward or into the bight formed by said arm and the table as set forth.

Third, I claim the herein described apparatus for giving out and taking up the slack of the thread, consisting of a partially revolving crank or arm, placed and operated substantially as set forth.

ROTARY HARROWS.—W. Y. Hildrup, of Harrisburgh, Pa.: I claim the arrangement of the bars, E, E, sliding-piece, F, and braces, I I, draft-bar, C, substantially in the manner specified, for the purpose of giving two or more harrows a self-adjusting movement, to or from each other, as is fully set forth.

LAMPS.—Samuel A. Hill and David Alter, of Freeport, Pa.: We do not claim separately the cap E, nor any portion of the choice covered by the patent granted to P. Plant, April 6, 1868, but we claim the arrangement and combination of the strip, F, within the cap, E, as and for the purpose shown and described.

[By this device combustion is retarded and the fluid within the lamp, as it is converted into vapor by the heat, is not instantly burned, but is allowed to absorb or become mixed with a requisite degree of oxygen to support combustion, and give a bright illuminating flame without a chimney.]

PLOWS.—Wm. C. Holmes, of Barnesville, Geo.: I claim the arrangement of the double beams, a a, hook, d, cross adjustable braces, b and c, shanks, k, and braces, m, the whole being constructed in the manner described for the purpose specified.

I also claim, in combination with the above, the seed-dropper, f, constructed for operation conjointly, as set forth.

STOVE-COVERS.—Isaac G. Johnson, of Spuyten Duyvel, N. Y.: I claim the said center-piece, constructed of malleable cast-iron, as an article of manufacture, as specified.

KNAPSACKS.—Wm. B. Johns of the United States Army: I do not claim the mere connecting of the sheets together, nor of themselves the devices used; but I claim the construction of knapsacks, so as to be entirely separated from their slings, and with the means of uniting several of them together, and stitching them as described, so that the knapsack will perform the double function of sheltering the soldier and holding his kit, substantially as specified.

BURNERS FOR VAPOR LAMPS—Henry Johnson, of Washington, D. C.—I am aware that a fluid pipe, for conveying the fluid to the generator, is not new: nor is a tube for conveying the gas from the generator to the burner, new; therefore, I do not claim either of them as new, or of themselves; nor do I claim the thumb-screw for regulating the flow of the liquid to the generator, as this is not new; but I claim the generator, burner and packing-box, b, constructed substantially as described, in combination with gas-pipe, h, and fluid-pipe, f, arranged and operating substantially as described, and for the purposes set forth.

MACHINES FOR CHAMFERING SOLES OF BOOTS AND SHOES—Wm. Johnson, of Hampstead, N. H.: I claim the improved chamfering tool, or manufacture, as constructed with its sole rest and presser, arranged with respect to the carrier, f, and the knife-holder, substantially as shown in the drawings, and as specified.

MORTISING MACHINE—Wm. Kegg, of Lawellsville, N. Y.: I claim the method of feeding along the work, as specified, consisting, essentially, of the feeding-wedge or wedges, M M, combined with the arms or projections, N N, sliding bolts, O O, and adjustable cams, P P, and arranged in connection with the feeding-table, G, frame, A, and sliding-frame, B, substantially in the manner described.

I also claim the adjustable stops, Q, Q, and notches, m m, in the wedges, M M, with their suspending hooks or staples, n n, arranged as described, in combination with the feeding apparatus, for the purpose set forth.

I also claim the cambination of the double scale, d, on the face of the feeding-table, G, with the movable or adjustable pointer, f, in the bed-piece, E, arranged and operating in the manner and for the purposes set specified.

I also claim the supporting index standard, F, in combination with the scale, g, and arrangement, a s, b, c, for adjusting the bed-piece of the feeding-table in position, and securing it in place substantially as described.

I also claim the "keyienon," T, fitting into the oblique groove, v, in the bottom of the feeding-table, G, for the purpose of properly securing and tightening the said table on the bed-piece, E, while at the same time the desired freedom of its motion is allowed, substantially as set forth.

STOVES—Gilbert J. Kingsbury, of Rochester, N. Y.: I do not claim employing side grates merely, or admitting air to consume the gaseous products of combustion, when the devices and arrangements therefor differ substantially from my own, but I claim constructing the fire-pot or furnace, B, so that a portion thereof is flaring or funnel-shaped, yet having side-grates or bars, with perpendicular faces, a a, and flame passages, b b, with air tubes and jets, i c, and grate-cap, C, when combined with the interior feeding-cylinder, D, the whole arranged and operating substantially in the manner and for the purpose shown and described.

DEVICE FOR HEATING FEED-WATER OF STEAM-BOILERS—Samuel Lamon and W. S. Gaskill, of Vanwert, Ohio: We claim the cylinder or other suitable vessel, A, provided with the induction and eduction exhaust steam pipes, B C, and the spiral or helical feed-water passages, E, arranged substantially as and for the purpose set forth.

[The exhaust steam of an engine is introduced into a cylindrical vessel, provided with spiral water passages, arranged in a peculiar way, and through which the water is introduced in a very circuitous manner into the boiler, and exposed perfectly to the steam during its passage through the cylinder so as to become heated thereby.]

STEAM-GENERATORS—A. B. Latta, of Cincinnati, Ohio: I claim the method of regulating the circulation of water through the division coils, by means of a dividing piece, A, constructed in the manner and for the purposes substantially as set forth.

SELF-PRIMING GUN—Rich'd S. Lawrence, of Hartford, Conn.: I claim, First, The "shut-off," g, constructed, applied, and operating substantially as and for the purposes specified.

Second, Constructing the driver with its rear portion of about double the thickness of the pellets, and with the wedge-like bevel, 11, and the groove, 12, substantially as and for the purpose described.

Third, The combination of the downwardly extended tooth, 20, of the cover-spring, and the notches, 17, 18, in the shut-off, and k, in the lock-plate, substantially as and for the purpose set forth.

[This is an improvement upon the well-known "Sharp's primer," whereby greater facility is afforded for the introduction of the pellets into the tube or magazine provided for them in the lock-plate, and provision is made for shutting them off to permit the use of common percussion caps in the ordinary manner when desired; and generally to prevent the pellets from interfering with, or being interfered with, by the movements of the hammers when it is desired to operate the hammer without delivering the pellets, and whereby, also, the delivery of more than one pellet at a time is effectually prevented.]

ALARM-LOCK—Henry Lockwood, of New York, N. Y.: I claim, First, The bar, L, provided with the buttons, e, c, connected with the hammer-rod, D, and arranged with the latch, E, and bolt, J, provided with projections, g h, substantially as and for the purpose set forth.

Second, The movable or adjustable plate, or disk, M, arranged with the key-holes, j k k, and provided with projections, j', to act on the button, i, of the bar, L, substantially as and for the purpose set forth.

Third, The combination of the plate or desk, M, and bar, L, when arranged with the latch, E, and bolt, J, to operate as described.

[The latch and bolt of the lock are connected with the hammers of a bell, so that an alarm will be sounded if either latch or bolt are operated, and there is another device which rings the bell when the key is applied to the lock.]

RAILROAD CAR SEAT AND COUCH—Wm. R. Jackson, of Baltimore, Md.: I claim the method described, of constructing the ordinary reversible seats of railroad cars, so that the backs can be brought down into line with the bottoms; but this I only claim, when the backs, when so brought down, occupy the positions previously occupied by the bottoms, and the bottoms are used to fill the intermediate spaces between them, substantially as described and shown.

HARVESTERS—Gilderoy Lord, of Watertown, N. Y.: I claim, first, The rake-head, constructed as described, in combination with the endless belt, O, and tripping-foot, or hand lever, q m, substantially as and for the purposes set forth.

Second, The combination of the ledge, L', with the spring-catch, L, of the rake-head, arranged substantially as and for the purposes set forth.

STEAM-BOILERS—Edward Lynch, of Washington, D. C.: I claim circulating the water and aiding the generating of steam in the main boilers of ocean-steamers, by passing the steam from the steam space of an auxiliary boiler into the water of the water-space, below the ash-pit of the main boilers, as set forth.

STEAM-ENGINES—Edward Lynch, of Washington, D. C.: I claim, first, The arrangement of the several parts of the engine, in their relation to each other and to the propeller shaft as set forth.

Second, I claim constructing the connecting-rod of one of the cranks or cross-heads, in the manner described, so as to allow of its surrounding the propeller-shaft, as described.

FOLDING LIFE-BOAT—Henry Martin, of Louisville Ky.: I do not claim of themselves either the hinged or pivoted ribs, or the hinged gunwale-bars; but I claim the described arrangement of the ribs, one half of which folds towards one, and the other half towards the other side, in combination with the hinged bottom-boards, D, which, by means of slots, e', secure the ribs in an upright position, and which are provided with seats, E, which are hinged to the bottom-boards by means of rods, d, and which are connected by the dove-tailed projections, d', the whole being constructed and operated substantially as and for the purpose set forth.

[This boat will fold into a small space, and when expanded will prove an efficient life-boat, as it carries air-chambers, and will seat a number of persons. It is a valuable invention, which must be seen to be duly appreciated.]

CARPET-BAGS—Jonathan M. Mathews, of New York, N. Y.: I do not claim as new, any modification, or construction of the bag, for they have been constructed precisely as shown and described; but I claim the combination of the two frames, A B, with the catches, E E, substantially as and for the purpose specified.

Many carpet-bags are constructed on two frames that are hinged together, and the bag opens its entire depth to facilitate the packing and unpacking of it; they have been, however, difficult to fasten securely, and this invention is intended to overcome that objection. It consists in the employment of supplementary catches or locks applied to the frame of the bag to effect the desired end.]

METALLIC LATH—Joseph W. Masterstock, of New York, N. Y.: I claim as an improved article of manufacture a metallic lathing, composed of plates, provided with slits, ridges, and furrows, as shown and described.

[This lathing is intended to supersede wood, to which it is much superior in many respects, and the invention consists in a continuous metallic lathing of a suitable character to receive and retain plaster produced by the formation in the plates of a peculiar combination of slits, ridges, and furrows. The inventor has assigned the invention to himself and John M. Reed, of the firm of D. D. Badger & Co., Architectural Iron Works.]

SCREW-PROPELLER—James Montgomery, of Baltimore, Md.: I claim a screw-propeller, composed of a plurality of blades attached to their shafts, in one frame, or nearly so, when surrounded by a containing cylinder firmly attached to the peripheries of the said blades, substantially in the manner and for the purposes set forth.

MACHINE FOR CORRUGATING METAL PLATES—Richard Montgomery, of New York, N. Y.: I claim, first, Feeding the sheets, or plates of metal, at the proper time, by a feeding device constructed and operated substantially as described.

Second, The feeding device above described, in combination with the adjusting pins, on the first set of corrugating rolls, as set forth.

Third, The combination of two sets of corrugating side guides, h h, constructed, arranged and operated, substantially as shown and described.

Fourth, I also claim the corrugated sweeping and forming roll, w, constructed and used, as and for the purposes described.

ATTACHING IRON ROOFING—T. W. H. Mosely, of Cincinnati, Ohio; I claim, first, Securing the metallic roofing to the ribs, or purlins, so that it may slide or move freely upon and in the direction of the length of the purlins, substantially as set forth.

Second, I claim securing the purlins to the rafters of the building, so that they may have freedom of motion in the direction of their length, substantially as set forth.

Third, I claim the combination of the chairs, c, double flanged rail, e, anchors, n, and metallic roofing, m, as set forth.

REED MUSICAL INSTRUMENTS—E. P. Needham, of New York City: I do not claim the arrangement of one or more sets of reeds above the keys, in any other manner than that described.

But I claim, first, Applying and arranging two or more actions, one above another, above the rear portion of the key-board of a harmonium, or other reed instrument, in such a manner, substantially as described, that one or more of such actions may be removed at any time, and any one be exposed for repair or other purpose.

Second, In combination with the so arranged actions, I claim the passages, e e, and upright passage, f, arranged as described to combine the said actions with the bellows.

Third, Combining the several valves, or two or more of them, with the key, by a system of push-pins, or other equivalent direct connection from one valve to another, substantially as described.

Fourth, The sound-board, g, applied to constitute the back of the wind passage, f, substantially as described.

[This invention consists in applying and arranging two or more actions one above another over the key-board of the instrument in such a manner that either may be uncovered or exposed for repair or any other purpose by the removal of those above it. There is also a simple and effective arrangement of wind passages with the series of actions, a novel method of applying a sound board, and a simple method of combining the valves with this arrangement of the actions.]

SPARK ARRESTERS—J. F. Page, of Philadelphia, Pa.: I claim the intermediate casing, B, with its openings, d, and deflecting plates, b, when arranged in respect to the chimney, c, the deflector, G, and outer casing, A, substantially as and for the purpose set forth.

COFFEE POTS—J. B. Parish, of Cleveland, Ohio: I claim the fluid valve cover, E, as arranged with the cup, C, and the helical condensing tube, F, all operating in the manner and for the purposes set forth.

WARDROBE BED—F. C. Payne and A. Reid, of New York City: We claim the combined arrangement with a secretary or wardrobe of a bed in the back thereof, substantially in the manner and for the purpose described.

Also, the arrangement of the brackets, L, board, M, for the twofold purpose of folding compactly, to hold the clothes on place, the folding legs, K, the pulleys, P, the cord, E, weight, S, as and for the purpose described.

WATER COOLER—A. H. Phelps, of Trenton, Mich.: I claim the arrangement or combination of the tank, C, the refrigerator, B, and non-conducting chamber or casing.

I also claim, in combination with preceding, the air-chamber, D, surrounding the faucet, F, all the parts arranged substantially as and for the purpose described.

TREEING STICKS—L. L. Pollard, of Worcester, Mass.: I claim, as a new article of manufacture, the described treeing-stick, when constructed and operating in the manner and for the purposes set forth.

CLOTHES' FRAME—Robert Ramsay, of New Wilmington, Pa.: I claim the combination and arrangement of the standard and the arms, with the bolts, washers, and springs, substantially as and for the purpose specified.

DIRT SCRAPERS—A. J. Robison, of Gypsum, N. Y.: I am aware that dirt scrapers have been made, so as to empty themselves by rotating, or turning over, and therefore this I do not claim.

But I claim the combination of the cam plate, P, with the spring bar, A, for consecutively releasing and retaining the scraper in position, as shown, the whole being arranged in the manner and for the purpose substantially as described.

MODE OF APPLYING POWER FOR EXTRACTING STUMPS AND RAISING HEAVY WEIGHTS—Henry Rieman, Jr., of Rogersville, Ind.: I claim, first, The described combination with the worm shaft, F, and spur wheel, E, the arrangement and application of the movable pillow block, M, and wedge, L, to hold the said spur wheel firmly in position, or admit of its being readily thrown out of gear, as set forth.

Second, I claim the adjustable supports, N P and Q T, adapted in the manner set forth, to sustain the machine on wheels, to convey it from place to place, and permitting its deposit on the ground while in operation.

MOLE PLOW—D. F. Robbins and Simeon Morrison, of DeWitt, Ill.: We claim, first, Making the beam of a mole plow in two parts, united by a horizontal joint, to give it lateral adjustment, substantially as described.

We also claim connecting the drag (which supports, and upon which the point of the beam is made adjustable, vertically) to the rear portion of the beam by a hinged joint, or connection, so that the raising or lowering of the point of the plow-beam shall not affect the drag, substantially as described.

WATER WHEELS—J. S. Rowell, DeW. C. Teller and M. Lowth, of Beaver Dam, Wis.: We claim, first, The combination of a series of curved guides, G G, with the buckets of a water wheel, E H, in the manner specified and for the purposes set forth.

Second, Having the guides curved and fitted to a hub of a wheel, and arranged on a rising and falling governor, or spring, regulated capping plate, I, so as to overhang the buckets, and extend down, more or less, over the discharge orifices of the same, as specified and for the purposes set forth.

OSCILLATING ENGINE—Mark Runkel, of New York City: I claim the segment, D, with the projections, d, in combination with the shell, B, and the abutment, c, or its equivalent, arranged substantially as and for the purpose specified.

[The steam in this engine is admitted alternately to each side of an oscillating piston, which works in a shell similar to a rotary engine, the change of the direction of the steam being effected by a slide valve. The oscillatory motion of the piston being converted into rotary by mechanical means, this engine forms a convenient motor.]

HARVESTERS—Hiram H. Scoville, of Syracuse, N. Y.: I do not claim the use of a bow or canvas attached to the back of a rake; but what I claim as my invention and desire to secure by letters patent, is the arrangement of the propelling crank, E, and stationary cam, F, with respect to the rake-bar, and universal joint, when the same are constructed and operated in the manner and for the purpose set forth.

I also claim suspending a swinging-apron, from frame-work, over the platform and in front of the rake, the same being constructed and operating, substantially in the manner and for the purpose set forth.

MACHINE FOR SPLITTING SHOE-PEGS FROM THE BLOCK—Winthrop D. Shaw, of Tamworth, N. H.: I do not claim a reciprocating-knife, in connection with a fluted feed-roller, for cutting shoe-pegs, for such device has been previously used, neither do I claim simply duplicating or reciprocating-knife, or the employment of two reciprocating knives, in connection with a feed-roller, irrespective of the arrangement shown and described.

I claim the feed-roller, I, in connection with the two reciprocating or vibrating knives, G H, the latter being so operated that one will move slightly in advance of the other, so that the cuts will be given the block successively, and still admit of the proper feeding of the block, M, to the knives—the feed-roller being operated by the pawl, n, rendered adjustable by the attachment of the bent lever, O, to the adjustable bar, K, the whole being combined and operating substantially as and for the purpose set forth.

[There is a class of shoe-peg machines in which a feed-roller and a single knife are employed for performing the desired work. The object of this device is to expedite the working of this class of machines without augmenting the labor or number of attendants required in operating the old machines. The invention consists in the employment of two knives arranged and applied to the machine so that they will work conjointly with a feed-roller and effect the desired result.]

SKATES—D. H. Shirley, of Boston, Mass.: I claim a sliding heel-piece or clamp, susceptible of being moved forward and back, and fastened at any desired point, in such a manner that the toe of the boot or shoe, being held by a suitable toe-piece or longitudinal binding force can be brought to bear upon or relieved from the foot, as set forth.

METALLIC COFFINS—Isaac C. Shuler, of Amsterdam, N. Y.: I claim, first, The arrangement of fastening the flange or lower ends of the walls of a sheet-metal coffin, in a tray or pan, c, which forms the bottom, and which exceeds the circumference of the walls, by a narrow chamber, m, which may be filled with molten metal, for stiffening the base: also the strengthening bars, l l, for stiffening the bottom of the tray, substantially as described.

Second, The arrangement of scrolling or doubling over the flush lower edges of the walls of a sheet metal coffin, soldering, consecutively, each fold of the sheet-metal, thus making a solid rim or flange of any required thickness, for the purpose of strengthening the base, substantially as described.

Third, The arrangement of placing on the outside of the walls, even with the upper edge, and extending downward, any required distance, according to the size of the coffin, a sheet metal rim, f, which may be filled with the molten metal, for the purpose of strengthening and keeping in shape the upper edges of the walls of a sheet-metal coffin, substantially as described.

Fourth, I disclaim an entire frame for covering the joint of the air-tight lid of a sheet-metal coffin, with the coffin walls; I also disclaim any bisected sliding-covor, these being claimed elsewhere; but I claim the hinged lids, i i, as applied to the joint, in different sections, for the purpose of allowing a greater number of ornamental breaks in the coffin walls, substantially as described.

Fifth, The frame, n n n n, for the support of the coffin-handles.

FASTENING FOR SHIRT-STUDS—Henry Simon, of Providence, R. I.: I claim shirt studs, A, arranged with arms, b and c, to operate substantially in the manner and for the purpose specified.

[This improved shirt stud is easily fixed and removed; it holds the shirt together well, and is not liable to tear the button-hole.]

HARVESTERS—John Smalley, of Bound Brook, N. J.: I claim, first, The combination of the seats, Y Z, one of which is movable, as described, with the seat frame, b b, elliptical springs, X X X' X', and main frame of the machine, the whole being arranged substantially as described and shown, and for the purposes set forth.

Second, Constructing the outer piece, c', in the peculiar manner above described, viz., with two or more sockets, a'', in combination with the caster-supporting hub, S, and extension piece, x'', for the purposes set forth.

Third, The neck, I, in combination with collars, J J, groove, H, standard, J', and lever, d, arranged substantially as shown and described, for the purpose of throwing the gearing in and out of action, as set forth.

Fourth, Supporting the reef arms by means of the peculiarly constructed hub, w, as shown and described.

COCKS FOR WATER BASINS—Horace W. Smith, of Hartford, Conn.: I claim the employment of the spring, F, and the grooved and bevel face cam, H, when acting in combination as and for the purpose described.

EPAULETTES—James S. Smith, of New York City: I claim the arrangement and combination of the adjuster, B, fringe, C, and shell, A, substantially as and for the purpose shown and described.

[A convenient and simple invention, which will be appreciated by the military.]

GRATES—Philip Smith, of Fall River, Mass.: I claim hanging the front plate, G, on pivots, arranged so far below the top that, when the bottom is swung out, it will carry in its top and operate the inner upper plate, L, as described, for the purposes set forth.

I claim arranging the plate, L, to vibrate substantially as described, for the purposes set forth.

I claim the plates, H, and H', constructed and arranged substantially as described.

I also claim making the plate, L, in separate pieces, fitted together, substantially in the manner described.

STOVES—Philo P. Stewart, of Troy, N. Y.: I claim the method, substantially as described, of preventing the heat from striking through to the rising flue leading to the chimney, by separating it from the back oven plate, and from the two descending flues, by non-conducting partitions, or the equivalent thereof, as described and for the purpose set forth.

I also claim, in combination with the flue above the oven, and with the rising flue leading to the chimney, the employment of a double-damper, filled in with cement, or other equivalent non-conducting material, substantially as described, to prevent the heat from striking through from the top flue to the rising flue, as set forth.

And I also claim separating the direct flue under the oven from the return flue below by means of a plate lined with cement, or rendered non-conducting by equivalent means, substantially as described, to prevent the heat from striking through to the return flue, and thereby impart greater heat to the bottom of the oven, as set forth.

TOOLS FOR FORMING LUGS IN THE MOUTHS OF BOTTLES AND JARS—Amasa Stone, of Philadelphia, Pa.: I claim making one part of the spindle, which forms the orifice of the jug or bottle, to turn freely, substantially as described, while the other part remains stationary in the nose of the bottle.

I claim making one, two or more scores in that part of the spindle that turns freely, in combination with the corresponding score or scores in that part of the spindle which is stationary, and which aid in forming the orifice in the jug or bottle nose, substantially as described.

STOVES—David Stuart, of Philadelphia, Pa.: I claim the distributing chamber or discharge pipe, r, formed with a central projection, q, and supplied with heated air from the grate front through pipes, h, as set forth.

I claim the discharge pipe, Z, located under the oven, and supplied from the grate front by pipes, k, as set forth.

I claim dividing the grate front horizontally into two series of heating chambers, as set forth.

COVER LIFTERS IN COOKING STOVES—Philo P. Stewart, of Troy, N. Y.: I claim the lifter, made up of malleable cast-iron and wood, as set forth.

CONSTRUCTION OF NAVIGABLE VESSELS—R. H. Tucker, Jr., of New York City. Patented in England, Dec. 10, 1857: I claim the construction of navigable vessels in the form of isosceles triangles, with vertical sides and flat bottom, the base for that side of the triangular figure, which terminates in the two equal angles, constitute the stern, in combination with the air-chamber, constructed substantially as and for the purpose described.

ROTARY HARROWS—S. M. Wade, of Andover, Ohio: I claim the bar, K, provided with the arm, M, clutch, N, and pins, L L, in combination with the angular draw bars and double harrows, in the manner and for the purpose described.

I also claim the rod, O, arms, Q, and rollers, P P, in combination with the angular draw bars and double harrows, when arranged in the manner and for the purpose set forth.

WATER-WHEELS—Paul Wagner, of Buffalo, N. Y.: I claim the combination of the buckets, D, arranged on the cylinder, E, as described, and the stationary inclined planes or buckets, G, arranged with reference to the cylinder, H, and buckets, D, as described, the whole being enclosed by the case, A, substantially as and for the purposes set forth.

VALVE GEAR FOR STEAM-ENGINES—Elijah Ware, of South Boston, Mass.: I claim combining the eccentric rod with the valve rock-shaft, G, or its equivalent, by means of the lever, I, with its two arc-formed slots, d e, and the movable pins, f g, the whole applied and operating substantially as and for the purpose specified.

And I also claim the combination with the double-slotted lever, I, and its movable pins, f g, of the levers, Q V, rods, m U, levers, M N and T, secondary lever, O, pinion, u, toothed arc, S, and rods, L P, the whole applied and operating substantially as and for the purpose described.

[This invention consists in a novel means of connecting the eccentric rod with the valve rock-shaft, for the purpose of enabling the stroke of the valve to be varied to vary the point of cutting-off the steam from the cylinder of an engine. It also consists in a novel combination of mechanism, through whose agency the operation of the slide or valve, or system of valves, employed in a steam-engine is effected by means of a single eccentric, which, without ever being shifted upon the shaft, is made to work the valves for running the engine in either direction, and to vary the movement of the valve for cutting-off the steam at different points in the stroke of the engine.]

SEEDING-MACHINES—Moses D. Wells, of Morgantown, Va.: I claim the notches of the bar with the series of pins, c, therein, in combination with the guides, a a, and upward projecting rims, of the discharge openings, b, substantially as set forth.

QUILTING-FRAME—Joseph Wetherill, of Manchester, Conn.: I claim the employment of the rolls, C D E, in combination with the arms, F, pawls, G, notches, H, so that the upper roll, E, may be lifted when desired, arranged in the manner and for the purpose described.

HOOP-FASTENING FOR COTTON BALES—Geo. J. Widrig, of Memphis, Tenn.: I claim the combination of the sides, A, having slots or grooves, c, with the bar, B, for the purpose of fastening cotton bales, or other similar substances, by bringing the last end, f, over the bar, B, substantially as described and for the purpose specified.

CONSTRUCTING ELECTRO-PLATED ROLLERS—John W. Wilcox, of West Roxbury, Mass.: I claim covering the shaft, base, or support with a filled or ribbon of metal, soldered or otherwise secured thereto, and depositing the copper on said surface by electro-plating, substantially as described.

BRICK MACHINES—Russell Wildman, of Danbury, Conn.: The advantages secured by this improvement is the reducing of the friction; I am not confined to any particular form of mold; the one shown, which forms the hollow block has been long known, and can be seen in Foster's patent, dated July 22, 1856, and also in Buck's patent, dated Dec. 2, 1856; the toggle-power also is common in most kind of presses; also, the slide cut-off in the feed may be seen in Isaac Harman's patent, dated Aug. 12, 1856. Therefore I disclaim the above described parts, separately considered from their connection.

But I claim, first, The vibrating arm, B, when constructed, combined and operated, substantially as described.

Second, I claim the vibrating feed, when constructed, arranged and operated, in combination with the mold, m, substantially as set forth.

GATES FOR CANAL LOCKS—C. W. Williams, of Port Jervis, N. Y.: I do not claim, broadly, the employment or use of the balls, *g*, for they have been used for similar or analogous purposes.

But I claim, first, The rods, C C, and rack, D, applied to the gates, B B, for the purpose set forth.

Second, Having the journals, *c*, of the gates fitted in oblong slots, *d*, of the pulleys, *e*, which are placed in suitable bearings or boxes, *f*, and arranged substantially as shown, to admit of the sagging of the gates, and the close fitting of the same when closed for the purpose specified.

Third, Securing the bearings or boxes, *f*, to the lock, A, by means of the rods, h, the boxes being attached to slides, i, and arranged substantially as shown, so that the boxes may be adjusted as occasion may require.

Fourth, Operating the wickets, H H, by means of the gearing, arranged as described, whereby either wicket may be operated from one and the same crank-shaft, *q*.

[A novel means of opening and closing the gates, and a peculiar manner of hanging them, constitute this invention, whereby the small balance-sweeps are dispensed with and the gates are allowed to be operated with comparatively little friction, and are rendered capable of being closed much tighter or with less leakage than formerly. There is also a device for operating the wickets, whereby both wickets may be operated singly from one and the same crank-shaft.]

PLOWS—Wm. H. Wilson, of Summerfield, Ohio: I claim the arrangement of the sub-soil shovel, W, the common shovel, M, coulter, C, and brace, A, the whole being constructed as described for the purpose set forth.

ADDING-MACHINE—C. Winter, of Piqua, Ohio: I claim, first, The arrangement of the lever, e, spring, d, shaft, h, wheels, m n, and stops, c and f, in the manner set forth and for the purpose specified.

Second, The arrangement of the ratchet-wheel, k, bevel wheels, j and i, pawls, s and z, cord, o, and pulley, P, in the manner and for the purpose substantially as described.

MODE OF APPLYING AND CONSTRUCTING HORSE-POWER MACHINES—Wm. Zeller, of Lebanon County, Pa.: I do not claim the cog-wheels or gearing used.

But I claim the construction of the horse-power machine described, by which it is made to drive a reaping-machine or stationary power, when the whole is constructed, arranged and operated substantially as and for the purposes described.

HANGING-BELLS—Henry Belfield, (assignor to himself and Justice Cox,) of Philadelphia, Pa.: I claim the lever, G, its spring dog, h, and spring, f, in combination with the bell-crank lever, F, its hammer, H, and spring, n, the whole of the parts being arranged in respect to each other and to the bell, C, substantially as and for the purpose set forth.

Second, The bracket, B, with its four legs and projection, b, for holding the bell, the said bracket being arranged in respect to, and in combination with the levers, G and F, and their respective springs, substantially in the manner specified.

REVOLVING PLUGS FOR MANUFACTURING BOTTLES AND JARS—John F. Bodine, (assignor to himself, Wm. H. Bodine, and Joel A. Bodine,) of Williamstown, N. J.: I claim the large ring bearings, a a, formed on and near the circumference of the turning plate, D, and fitting in ring grooves, b b, formed in the plug, C, and capping plate, E, substantially as and for the purposes set forth.

MACHINES FOR CLEANING GRAIN—Harrison Fitts, of Somerset, Mich., assignor to himself and Nelson Turrel, of Addison, Mich.: I claim the combination of the adjustable piece, K, with the concave and rubber, substantially as and for the purposes set forth.

OBTAINING FIBERS FROM WASTE FELTED FABRICS—J. F. Greene, of Brooklyn, N. Y., assignor to S. B. Tobey, of Providence, R. I.: I claim subjecting the felts to be disintegrated, to the successive and combined action of steam and picking, substantially as described, the steam having the effect either to so unfelt or loosen the hold which the fibers have on each other, in felted fabrics, that they can be drawn apart of sufficient length, to be advantageously employed in the manufacture of other felts or other fabrics.

MACHINERY FOR DISINTEGRATING WASTE FELT FABRICS—J. F. Greene, of Brooklyn, N. Y., assignor to S. B. Tobey, of Providence, R. I.: I claim the combination of the steaming apparatus and the picker, substantially as described, for steaming the felt, as it is passed to the picker to be disintegrated, as set forth.

MACHINES FOR CUTTING CORN STALKS, &c., ON GROUND PREPARATORY TO PLOWING—Hezekiah Johnston, (assignor to himself and Richd. Withers), of Collinsville, Ill.: I claim arranging and combining the curved frame, A', with the knives, E E, and the guides J J in the manner described for the purpose specified.

MACHINE FOR CUTTING FILES—C. Miller and T. W. Decker, (assignor to T. W. Decker), of New York City: We claim, first, Arranging the gage rest, M, to oscillate on a fulcrum, t, located in relation to the cutting chisel, substantially as shown, that by moving the arm of said rest, latterally, by means of the screw, N, the bed, C, and blank, a, may be adjusted to correspond with the cutting edge of the chisel, as set forth.

Second, Hinging the frame, E, which carries the chisel and its appurtenances to the frame, A, by a joint at f, so that the rest, M, may readily follow the curve of the file blank, and, with the chisel, be thrown back, when desired, all as shown and described.

[This invention consists in certain means of providing for the adjustment of the face of the file blanks to the edge of the chisel during the cutting operation so as to secure a uniform depth of cut all across the file. It further consists in a method of providing for the resting of the chisel-stock on the file-blank during the whole of the cutting operation, for the purpose of regulating the depth of cut, the same means also providing for the raising of the chisel-stock to afford convenience for taking out and putting in the files or file-blanks, and for the removal and replacement of the chisel. There is also a provision for changing the angle of the chisel relatively to the face of the blank.]

MACHINES FOR WRINGING CLOTHES—T. H. Peavey' of Montville, Me., assignor to himself and C. G. C. Collins, of Portland, Me.: I claim the arrangement of the rollers, C and D, with the rollers, A and B, when the same are constructed and operated in the manner and for the purpose described.

THRESHING-MACHINES—John J. Sigler, (assignor to himself and W. M. Griffith & Co.,) of Martin's Ferry, Oh io: I claim, first, the series of rollers, E' E'' E''', etc., provided with fingers or projections, a a' a'', etc., in combination with the slab device, b b' b'', the fingers working in the spaces between the slats, and being used for the purpose of carrying the straw from the threshing cylinder to the place of discharge, H, and at the same time so tossing it as to secure an effectual separation of the grain therefrom, the slab device, b b', etc., being employed for the purpose of supporting the body of the straw between the impulses of the fingers, a a', etc., and also for the purpose of preventing the straw from winding on the rollers, E E', etc.

Second, I claim the application of the oscillatory motion to the fingered-shaft, E, by means of which I secure an agitation inwardly towards the fan, G, in addition to the throw towards the place of discharge, M, for the purpose of more effectually freeing the apertures near the tail of the riddle, K, from obstruction, the required motion being obtained by means of the pinion, h, rack-segment, Q, and arm, X, or their equivalents.

METHOD OF ARRANGING GALVANIC-ELECTRO HELICES FOR MAGNETIZING THE DRIVING-WHEELS OF LOCOMOTIVES—Orrin D Vosmus, of Boston, Mass., assignor to himself and Edward W. Serrell, of Greenfield, Mass.: I do not claim, broadly, the application of electricity or magnetism, to cause adhesion of wheels of locomotives: neither do I claim a helix, applied to a locomotive wheel, as this has before been done, but, it is believed, proved nearly or entirely valueless: whereas, in my invention, I have succeeded, by the use of a curved helix, as set forth, in obtaining the point of the greatest magnetic effect at the point of contact between the wheel and the track, therefore, I claim a curved helix applied to the wheels of a locomotive engine, in substantially the manner specified, whereby the point of greatest magnetic effect is the point of contact between the wheels and track.

And, in combination with the helix aforesaid, I claim adjusting the helix in the manner and for the purposes specified.

PUMPS—Benjamin Douglass, of Middletown, Conn.: for himself, and as administrator of the estate of William Douglass, deceased, late of said Middletown What is claimed is the combination of the lugs, B and C, within the flange, x'', and the conical set nut, A, substantially as described, for fastening the lower end of the pump cylinder.

RE-ISSUES.

MACHINERY FOR MAKING WOOD SCREWS, &c.—Cullen Whipple, of Providence, R. I., assignor to the New England Screw Company. Patented Dec. 7, 1853—Ante-dated June 7, 1852: I claim, in combination with a mandrel, which carries chuck or griping jaws, an automatic mechanism, for closing said jaws upon the blank, keeping them closed to hold the blank while being dressed, and then opening them to release the dressed blank, arranged and operating in such manner as to leave the mandrel (during the time that the blank is being acted on by the cutter) free from endwise pressure by the chucking mechanism.

Also, in combination of toggle-levers, carried by the mandrel, a stop or hold-fast, also carried by the mandrel, to lock and hold the toggle-levers when pushed beyond a straight line, and griping jaws with shanks having sufficient elasticity to maintain a firm hold of the jaws upon the blank, when the toggle-levers have passed a straight line, substantially as set forth.

MACHINERY FOR MAKING WOOD SCREWS, &c.—Cullen Whipple, of Providence, R. I., assignor to the New England Company. Patented Dec. 7, 1852—Ante-dated June 7, 1852: What is claimed is a feeding punch and mechanism for causing it to approach within different distances of the griping jaws adapted to receiving and holding screw blanks in variable positions and of different lengths, in combination with a suitable tool-holder and cutting tool, substantially as set forth.

MACHINERY FOR MAKING WOOD SCREWS, &c.—Cullen Whipple, of Providence, R. I., assignor to the New England Screw Company. Patented Dec. 7, 1852—Ante-dated June 7, 1852: What is claimed is the spring discharging punch, in combination with the mandrel and griping jaws, when the punch and spring are both carried by the mandrel, substantially as set forth.

MACHINERY FOR MAKING WOOD-SCREWS—Cullen Whipple, of Providence, R. I. (assignor to the New England Screw Company. Patented December 7, 1852—Ante-dated June 7, 1852: What is claimed is, first, the feeder, composed of a sectional trough with a close bottom and open top, into which the blank drops and arranges itself before a traversing rod, which pushes it into the griping jaws, as described,

Second, The combination of an adjustable automatic feeding-punch and a spring-discharging punch, with an intermediate trough or equivalent means for bringing the blank into line with two punches, substantially as set forth.

Third, The arrangement of a spring-discharging punch, with its end far enough within the end of the grooves in the griping-jaws to leave an opening for admitting the end of a blank and guiding it against the end of the discharging-punch, thereby rendering the checking more certain, substantially as set forth.

PRINTING-PRESSES—George P. Gordon, of New York, N. Y. Patented July 13, 1858: I claim, first, the combination and arrangement of the feed-table, the fly or pile-board, the platen and bed, with the set or sets of independent revolving nippers or grippers, for the purposes described.

Second, I claim the fly-board with its adjustable gage or guide, in combination with the grippers or nippers, to ensure the even piling of the sheets of paper, or their equivalents, whatever the size of the sheet may be.

Third, I claim the vibrating double cam for throwing off and on the impression.

Fourth, I claim two or more distributing rollers, having a lateral motion upon a main distributer, which shall move independent of and in opposite direction to each other, and thus alternately cross and re-cross each other's distribution for the purpose of giving a uniform inking to the form.

Also the two distributions given to the inking-rollers upon one cylinder, for each impression (heretofore patented by me) in combination with the rotating reciprocating bed with the spring extensions attached, all of which is described and set forth.

AUTOMATIC GRIPPERS FOR CARRYING SHEETS OF PAPER IN PRINTING-PRESSES—George P. Gordon, of New York City. Patented July 13, 1858: I claim, first, One or more sets of grippers, nippers or fingers to revolve independent in themselves upon an axis, for the purpose of carrying the sheets of paper to the place of impression, or for carrying the sheet, after it has received the impression, to its place of deposit upon the pile-board or fly-board, or for either or both of these purposes, thus receiving and piling the sheets of paper in an even and regular heap by the acts of my automatic grippers or independent revolving-nippers, or their equivalents.

Second, I claim the combination of the independent revolving-grippers with the vibrating feed-board, or its equivalent.

Third, I claim the combination of the independent revolving-grippers with a pile or fly-board, to be used as described, or in some equivalent way.

Fourth, I claim the combination of the independent revolving-grippers with a feed-board and a pile or fly-board, or their equivalents, substantially as described and set forth.

HARVESTERS—Thomas D. Burrall, of Geneva, N. Y. Patented March 18, 1856: I claim, first, The shoe-piece, v, and rack, 14, to adjust the hight of the outer end of the finger-board, substantially as and for the purposes specified.

I also claim the shaft, f, passing across the end of, and nearly at right angles to the shaft, 1, of the main-wheel, a, when fitted in such a manner that its pinion, i, can be thrown into and out of gear with the face-wheel, K, for the purposes and substantially as specified.

COFFEE-ROASTERS—Theodore Heermans, of Mitchellsville, Tenn. Patented Jan. 18, 1859: I claim, first, The within-specified arrangement of the plates or shelves, D D', for the purposes set forth.

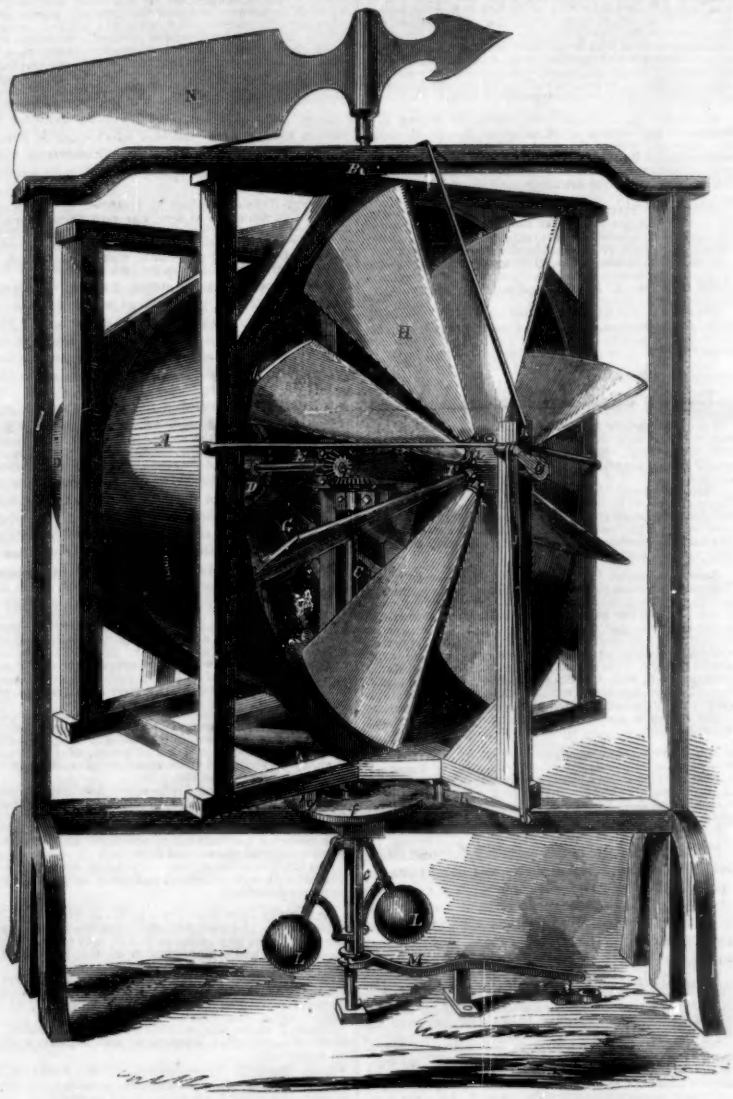
Second, The combination of a window or windows in a coffee-roaster, with agitating or elevating plates or shelves, substantially as and for the purpose set forth.

DESIGN.

STOVES—Garrettson Smith and Henry Brown, of Philadelphia, Pa., assignors to Hayward, Bartlett & Co., of Baltimore, Md.

QUICK SHIP-LOADING.—At the New Tyne Docks in England, a steamer was recently loaded with 400 tuns of coal and trimmed for sea in 55 minutes. These docks have been erected for the especial purpose of shipping coal, and are capable of loading 1,600,000 tuns per annum.

WHITMAN'S TURBINE WINDMILL.



Some authors assert that windmills were first used in France, in the sixth century, while others are as positive that they were brought to Europe by the Crusaders, and that they had long been known in the East, where a scarcity of water precluded the use of that agent as a motive power. Be the fact on the one side or the other, one thing is certain, which is, that the subject of our illustration was invented by Ephraim Whitman, of Abingdon, Mass., and to prove that such is the fact, Letters Patent were granted him for the invention dated Sept. 9, 1856, so we may leave antiquarians to settle the difficulty as to the first idea, and proceed to our own legitimate business—the description of the perspective view before us.

A flume, A, slightly tapering, is mounted in a suitable frame, in which it can rotate on a center, B, horizontally, to accommodate the direction of the wind, and always present the broad end to receive the current of air. At the back of A is placed a disk, G, divided radially by plates inclined and curved in order to give the proper direction to the wind as it passes to the turbine, D, which is rotated as the wind leaves its buckets. The motion of D is communicated by a shaft, E, and bevel gear, F, to a central vertical shaft, C, from which the power can be conveyed to any desired location either by belts or gears as may be most convenient.

A series of shutters, H, are placed in front of the flume to regulate the quantity of air admitted so that the motion of D shall always be regular and even; they are placed upon pivots, *a*, which are partly cogged, and these cogs gear into a bevel wheel, I, upon the shaft, *b*. A crank is placed on *b* and a link, J, and lever, K, are attached to it; the inner end of the lever, K, being connected with two bars, *c*, which are attached to the slide of the governor, L, that is placed upon the shaft, C. It will be easily seen how when D is revolving too fast, the governor balls, L, spread out, elevating the lever, K, depressing the crank and so turning the bevel wheel, I, and closing the shutters; on the other hand as the speed decreases the vanes are opened more and more and a larger quantity of air is admitted to the flume. Thus whatever be the force and velocity of the wind, a definite and even power can always be obtained with this wheel. When it is desired to keep the shutters closed, the lever, M, is used, which lever operates the governor slide so as to close the vanes, and a catch, *d*, retains them in that position. The flume, A, rests by friction rollers, *e*, upon a plate, *f*, on which it can turn, as on B; and the vane, N, keeps it constantly face to the wind.

This is an excellent windmill, and it certainly uses up the force of the wind in a most economical manner having little friction to overcome and being simple in construction. Any further particulars can be obtained from the inventor by addressing him as above.

American Machines in Australia.

We learn by our exchange, *The Colonial Mining Journal*, (Melbourne, Australia,) that the American quartz-crushing machine of Minor King, who lately arrived there from California, is very favorably regarded as being superior to other machines which have been used in that colony. Our cotemporary states that the stampers hitherto employed in crushing quartz have been made of very inferior metal, and that improved machinery is loudly called for.

SOMETHING LIKE WORK.—A wrapper-writer in this office wrote seventeen thousand one hundred (17,100) wrappers in six days, from Monday, April 11, to Saturday, April 16. There are not many, if there is one wrapper-writer in the United States, who can beat this.

Scientific American.

NEW YORK, APRIL 23, 1859.

The SCIENTIFIC AMERICAN *Office has removed from its old location,* 128 *Fulton st.* (*Sun Building*), *to No.* 37 *Park Row* (*Park Building*), *where all letters, packages, and models should hereafter be addressed.*

The Season.

"Spring is coming," says the song," laden with flowers."

A mild winter has passed away, Earth's white mantle has disappeared, and the world puts on her vernal vestment of many-colored leaves and flowers.

The plow slides quickly through the willing land, waking up many a life that has been dormant since the Fall, and the plowman whistles merrily as he controls the forming of the furrow.

The seed-planter clicks cheerily, as it deposits the germ of food and gladness in the bosom of the great Mother, and all nature seems gay, lively, and joyous.

The mists of morning and of evening give additional beauty to the rising and setting of the sun; the poet looks to the woods and fields for tropes; and the artist, forsaking albums, cities, and scrap-books, goes to drink in the forms of the beautiful from Nature's own pure fount.

Welcome, welcome, gentle spring!

But what shall he do who is neither artist, poet, nor laborer; who is only a simple searcher after truth? Or how shall they find rational recreation at this opening of the year?

Go study the great book—the Book of Nature, which is open everywhere for all to read and contemplate, offering pleasurable discoveries to the student, full of grand meaning and suggestive of that Father who not only controls his planet-children in their course, but cares for the falling of a sparrow and the up-springing of a blade of grass. Why, the very winds rustle its pages to make music for the scholar, and the bright sun replaces the midnight lamp.

Now is the time to understand the harmonies of created life, while the plant and the animal are, as it were, in embryo and young together.

The wonders of insect life become unfolded to the view, the small worm-like case is broken by the genial noonday warmth, and out flies the beauteous butterfly with his gaudy wings that light has painted. The fishes are seen disporting themselves in the clear brooks, and the birds sing merrily among the trees; the grass is soft and velvety, and its green is now the freshest; the sky is clear, the moon is bright, and the stars twinkle roguishly as if partaking of the joy of man.

Now is the time to study botany and the physiology of plants; their circulatory system, while the stems are tender; their respiratory, while the leaves are young.

Mineralogy and geology are best learned now, for the melting snows have washed the mountains and laid bare the strata, and fresh supplies of minerals are ready for examination.

In short, now is the time to commence the study of an out-door science with little help from class-books, and learning may be made a recreation.

Who will try and thus amuse themselves? Many, we hope.

Everywhere, all around us, are now fresh forms of life and things inanimate, each carrying their load of interesting facts to which a man may help himself, and leave them none the poorer, while they give to the possessor a store of riches that no panic can deprive him of.

Would you be truly rich, gentle reader? then be a student of out-door sights, sounds, and life, this spring of Eighteen-hundred and Fifty-nine.

Social Progress of Workmen.

There have been several recent strikes at Stafford and Northampton (England) among the cordwainers, against the introduction of sewing machines in the manufacture of boots and shoes. On this subject the London *Engineer* contains an able and enlightened editorial. It says: "To what school must workmen have gone not yet to have learned that of all the hopeless contests in which men can engage, that against the introduction of machinery is the maddest and the most *bootless*. The most they can do is to drive the manufacture to new fields and ruin the trade of their own districts. Doubtless they will suffer inconveniences and hardships by the change of machinery, but resistance to its introduction will only aggravate the evil. Mechanical science is destined to revolutionize all our old modes of industry, in order that she may eventually put them on a broader and more stable footing. After the struggle and jostling and discomfort of the new arrangement is over, then will come the solid advantage with which the change is fraught. Increased labor and higher remuneration have always followed in the wake of changes of this kind."

These remarks on the useful and beneficial effects of the application of machinery to new purposes, to supersede hand labor, are true and well expressed. The whole history of machinery is a living testimony to the elevating tendency which it has exercised upon the condition of mankind, and to none more than those who have blindly rebelled against its introduction. When we look into the philosophy of this question, we cannot but conclude that it is impossible for labor-saving machinery to produce other than beneficial effects upon all classes and communities, and we are surprised at the want of intelligence and English common-sense displayed by these rebellious shoemakers of Stafford and Northampton, in their efforts to turn back the wheel of Fate in the application of sewing machines to their trade. These men will find that such machines cannot be resisted; their course is onward, for they are apostles of civilization, under a wise and good Providence, for ushering in brighter days to the toil-worn and drudging hand-laborer.

In the same article, the *Engineer* asserts that one great cause of the degraded habits prevailing among so many workmen in England—such as resorting to the ale-house and places of very questionable public amusement—is the want of comfortable and cheerful firesides. Their houses are miserable in every respect. "Mr. Justice Baylis," says our cotemporary, "at the last Hampshire assizes, referred the long and hideous list of crimes to the want of accommodation in the cottages of the laboring population, an opinion that found many to sympathize with it. Years ago, that inspired peasant—John Bethune—spent his winter evenings in composing and delivering lectures on cottage economy, so deeply did he then realize the need of a radical change in the home management and life of the peasantry of Scotland. Yet to defects in these very things we have the crime and misery that disfigure our agricultural districts. Though varied in their mode of development, the same causes are at work elsewhere and similar ameliorations are called for."

These are the remarks of a true political economist, and though intended for the laboring classes of Great Britain, they are as applicable to those of our own country. The calender of crime in New York and other cities reveals the fact that the great mass of intemperate persons and criminals are those who live in crowded and pent-up dwellings, which are destitute of ventilation, accommodation, and means of cleanliness. As intemperance, and its consequent attendant crimes, necessitate the raising of the greatest share of our taxes, by requiring a large police force, numerous prisons, courts of justiciary, hospitals, &c., it would be a truly wise political economy were our wealthy property-holders to take up this subject in an enlightened manner, and endeavor to provide comfortable and attractive houses, at moderate rents, for the laboring classes. By doing so they would reduce the amount of crime and immorality practiced, and thereby reduce their own taxes. This is a question of social science which deserves more attention than it has yet received by all classes of the community.

Inventors' Honors—Strange Case.

It is pretty well known in scientific circles that William Armstrong, of Newcastle, England, has recently been made a knight by her Majesty, Queen Victoria. It is also well known that this honor has been conferred upon him for his invention of a breech-loading rifled cannon, by which iron conical bullets, coated with lead, were fired through the sides of an iron floating battery as easily as if they had been made of glass. This invention is supposed to have given to England vastly increased powers of destroying enemies' shipping, demolishing their fortifications, and blowing up their cities; hence it was a perfectly just duty of the Sovereign to confer great honor for such artillery improvements. There is one person, however, who now comes forward and advances claims to the same invention, dating these forty years ahead of those of the new-created knight. This person is J. C. Daniel, of Bath, England. In a late communication to the London *Mechanics' Magazine*, he states that the Armstrong gun and shot are, in all the most essential points, complete copies of his gun and shot, which have been in the hands of the British government for upwards of 40 years. About 45 years ago he invented a breech-loading rifled cannon (also small arms), and by direction of the government authorities, these were sent to Woolwich, where they have remained in "durance vile" ever since. Mr. Daniel had also a second six-pounder gun cast, which remained at his own house till 1851, when he took it up to the Great Exhibition, and afterwards brought it under the notice of the Duke of Wellington and Lord Raglan, when the latter advised him to have it examined by a Board of Officers at Woolwich. This was accordingly done and the principles of the gun approved of, but the Board declined to recommend government to have a larger one made, although the inventor offered to pay the whole cost if it should fail. The construction of this rifled cannon at the breech appears to be similar to Sharp's rifle. The chamber is a little larger than the general bore of the gun, and the iron balls are cased with lead, so that they do not cut the iron; the breech which closes the charge chamber is a cast-steel gate, worked by a lever. From the letter of Mr. Daniel, we deduce that he invented a most effective breech-loading rifled cannon over 40 years ago, put the British government in possession of it, and again brought it to the notice of the Woolwich authorities in 1851. Here, then, was a most efficient old cannon, which could have been used in the Crimean war with destructive effect, suffered to lie in idleness and obscurity until the Queen of England confers knighthood for the invention, in 1859, upon a very different person from the original inventor. In all likelihood Mr. Armstrong has had more influence than Mr. Daniel, and knew how to use it with the government officials. We advise Queen Victoria to knight Mr. Daniel also: he has a joint right to such an honor, and likewise a share of the £100,000 which have been awarded to Sir William Armstrong.

The Frigate Niagara.

This noble ship of war is now in the dry dock of the Navy Yard at Brooklyn, where her bottom has been inspected and found somewhat seriously injured, a considerable portion of the false and main keels having been carried away. Her boilers and engines have been overhauled and renovated, and she will soon be turned out again as good as new.

Railroad Cars—Dead Weight.

There are twenty-eight thousand miles of American railroads now in operation, in which there is invested no less than $1,050,000,000. These modern avenues of commerce have been of incalculable benefit to our country. They have brought distant cities into close proximity, facilitated the means of communication, and have wonderfully developed our national resources; and yet they have proven very disastrous to the interests of those who furnished the means to build and equip them. Hundreds of persons have been ruined by the miserable results of their investments; while on the entire capital sunk, not more than two per cent interest is paid annually. There are a few lines which pay respectable dividends; but taking the mass of them, no property is more unprofitable or held in greater disrepute. The great expense daily incurred in working our railroads is the fatal hindrance to their prosperity. On account of the defective construction of the track, and the vast amount of tear and wear in engines, cars, &c., thereby involved, it has hitherto taken nearly all the income to pay the current expenses. It is generally admitted that, with good management, no property should pay better than railroads, but how such a result can be brought about is the important question. We would direct attention to one of many points where an apparent improvement can be effected—we mean the cars. A pamphlet, just published in this city, advocates the use of the "La Mothe Iron Car" as one means of decreasing the current expenses of railroads. It is constructed in a peculiar manner of thin plate iron, and is stronger and much lighter than common cars. Now, as it is stated that each common wooden car is about two tuns heavier than it ought to be, it follows that a locomotive drawing twenty cars has a dead weight of forty tuns imposed upon it, which weight brings in no pay but causes considerable outlay. If cars can be made equally strong and comfortable, and two tuns lighter than the common kind, they will certainly effect a great saving in railroad expenses if adopted. At any rate, the subject of drawing a useless load in cars on railroads is one to which more attention should be directed, independent of the La Mothe or any other particular car. Some years ago, Mr. D. C. McCallum, while Superintendent of the New York and Erie Railroad, directed attention to this very point in one of his reports; but, practically, his suggestions have not been acted upon since, so far as we are aware. We believe the present is a very favorable period for presenting the subject again, and we hope it will not be overlooked or neglected by those interested in the question.

A full size sixty-passenger iron car, of the construction alluded to, is now being constructed at Paterson, N. J., and it is stated that, while it is stronger than a wooden car, it only weighs 9,000 lbs. This is from three to ten thousand pounds less than wooden cars of the same capacity—a very great difference indeed. It is expected to be completed in a few weeks, and several of the railroads diverging from Boston have combined to give it a fair trial, by running it on each of the roads in succession under various conditions. The importance of the results which may be achieved by the substitution of iron for wood in railroad cars is worthy of great consideration.

COMMISSIONER OF PATENTS.—Up to the time of going to press no appointment had been made of Mr. Holt's successor to the office of Commissioner of Patents. There are a number of candidates, and we hope to be able to announce the successful one in our next issue.

ANOTHER TRIAL.—The blow-off for boilers invented by J. H. Washington, of Baltimore, and illustrated on page 252 of the present volume of the SCIENTIFIC AMERICAN, is being tried in the boilers of the steamship *Vanderbilt*.

Observations on the Connection of the Elements by their Atomic Weights.

BY SEPTIMUS PIESSE, OF LONDON, ENGLAND.

[Concluded.]

The equivalent of Fluorine has never been established experimentally.

If the equivalents of the four Isomorphous substances in question be added together, and the product be divided by two, four times successively, it is remarkable to observe the round numbers or equivalents thus obtained.

Thus—Fluorine	233		
Chlorine	442		
Bromine	978		
Iodine	1579		
2)	3232		
2)	1616	=	Iodine
2)	808	=	Bromine
2)	404	=	Chlorine
	202	=	Fluorine

It will be observed that the equivalents obtained by the first computation bear a direct proportion to those gained in the second. Thus—

466 : 404 : : 1864 : 1616
Again, 233 : 202 : : 932 : 808 &c.

Therefore these latter numbers (*i. e.* 1616, 808, 404, 202) would be the atomic weights of the elements respectively belonging to this group, if this theory is admitted.

I now come to the second group, viz., Oxygen, Sulphur, Selenium, Tellurium.

The equivalent of Oxygen is	=	100
multiplied by		2
gives for Sulphur	=	200
multiplied by		2
gives for Selenium	=	400
multiplied by		2
gives for Tellurium	=	800

These numbers, with the exception of Selenium, are very near the originals; and the error of Selenium is so near the atomic weight of Oxygen, that for this and other reasons, I am induced to believe the Selenium of the present day contains an atom of that element.

If the same calculation be made with this group as with the former one, namely, adding their atomic weights together, and dividing them by two, we gain numbers which verify the supposition that the atomic weight of Selenium is 400, and not 494.58 as given by Berzelius. Thus:—

Oxygen	100		
Sulphur	201		
Selenium	494		
Tellurium	801		
2)	1596		
2)	798	=	Tellurium.
2)	399	=	Selenium.
2)	199.5	=	Sulphur.
	99.75	=	Oxygen.

These numbers bear a direct proportion to the first computation, which may be considered accurate from the circumstance of its bringing to Oxygen the atomic weight assigned to it; for as

400 : 399 : : 99.75 : 100

From Oxygen being right, I believe the rest to be right; consequently, the atomic weight of Selenium to be 400, and not 494.58. If this be the case, then one of two things must necessarily exist—first, if Selenium is a true element, then its atomic weight is stated too high; or secondly, if it is an oxyd, it is a trifle too low, 6.42.

Many will condemn this supposition in consequence of Seleniate being Isomorphous with the Sulphate, Chromate, and Manganate of the same base. It has, however, been proved, that though the salts are Isomorphous, it does not follow that the acids should be so. No two salts agree in their Isomorphism so much as the Arseniates and Phosphates of Soda; for every Phosphate there is an Arseniate corresponding in composition and identical in form. But the Arsenic and Phosphoric Acids *are not* Isomorphous; Arsenic Acid contains five atoms of Oxygen, while Phosphoric contains only two. The fact has been proved by M. Longchamp (*Comptes Rendus*, July, 1842). So that Selenic Acid may contain an atom more Oxygen than Sulphuric, Chromic, and Mangaic, and yet produce salts which are Isomorphous with the Sulphates, Chromates, and Manganates.

Others will perhaps condemn this equivalent because the original one was given out by its discoverer, Berzelius, a chemist noted for his accuracy, but it must be remembered, that many Binary compounds act the part of an element—of a simple body! Uranium was stated by Berzelius to have an atomic weight of 2711.36. This substance was proved by M. Eugene Peligot (*Comptes Rendus de l'Académie des Sciences*, No. 8, August 23, 1841), to be an Oxyd of the true base Uranium, which has an atomic weight of 1700. A discovery has been made almost equal in importance to the decomposing power of the galvanic battery; in fact, that substances supposed to be elements have been decomposed by the joint influence of two substances, such as Chlorine and Carbon, &c., at a high temperature. Iron, Zinc, Carbon, Uranium, Phosphoric Acid, &c., have all had their atomic weights altered since the tables of Berzelius were made out.

While upon this group, I cannot help mentioning the connection it has with the first, in regard to the atomic weights upon this theory; for instance—

FIRST GROUP.		SECOND GROUP.	
Oxygen	100	Fluorine	202
Sulphur.....	200	Chlorine	404
Selenium	400	Bromine	808
Tellurium	800	Iodine	1616

It will be observed that the second group have twice the atomic weight of the first, with two, four, eight, sixteen, above respectively.

These two important groups are not only connected by the remarkable analogy of their atomic weights, but also by their combinations with the metallic class of elements. Thus we have—

Oxyds	or	Oxurets.
Sulphides	or	Sulphurets.
Selenide	or	Selenurets.
Tellurides	or	Tellurets.
Fluorides	or	Fluorurets.
Chlorides	or	Chlorurets.
Bromides	or	Bromurets.
Iodides	or	Iodurets.

Again, in combinations of Hydrogen, we have these two classes forming analogous compounds.

It will not, perhaps, be out of place here to mention, that if the eleventh and twelfth group be numerically treated as the first and second, numbers are obtained which bear a direct proportion to those acquired there. (Nickel is left out because it has the same atomic weight as Cobalt.)

Alumium	171		
Manganium	345		
Cobalt	368		
Thorium	744		
2)	1628	=	Iodine — 12
2)	814	=	Bromine — 6
2)	407	=	Chlorine — 3
	203.5	=	Fluorine — 1.5

The reader may draw his own conclusions on this observation.

It is not my intention to extend, at present, these observations further by showing the numerical analysis of every group, because sufficient has been said for the purport of my argument, which amounts simply to this:—First, that between Isomorphous substances a relation exists in their equivalents, which, when accurately determined, are always a multiple of each other, or have the same atomic weight. Isormorphism can always be traced in some of their compounds, where the equivalents have a direct proportion. Secondly, Selenium being Isomorphous with the substances with which it is grouped, but having an atomic weight incompatible, is the reason its equivalent is stated to be wrong. Thirdly, it is my opinion that the whole of the elements want their atomic weights revising; but it would be useless if some more efficient mode of taking them is not proposed; when it is considered that altering the proportion of Water from 61.72 to 64.15 in Phosphate of Soda, so modifies the composition of Phosphoric Acid, that from containing five atoms of Oxygen in the first, it is reduced to two in the second case; this must, I think, be sufficiently obvious.

I see a remarkable connection also between the specific gravities and the specific heats of my little groups of bodies. I see also (I may as well say it as think it) that the various bodies of each group have a basis common to all! in fact that these bodies are *one* body in various physical conditions! — that the dream of the alchymists will yet be realized, but if he would make gold, it must be with platinum.

*** Persons who write to us, expecting replies through this column, and those who may desire to make contributions to it of brief interesting facts, must always observe the strict rule, viz., to furnish their names, otherwise we cannot place confidence in their communications.

We are unable to supply several numbers of this volume; therefore, when our subscribers order missing numbers and do not receive them promptly, they may reasonably conclude that we cannot supply them.

A. L., of Mass.—The pressure of the wind on the wing of a windwheel depends not only on the velocity of the wind but also on the velocity of the wing. If you give your wings a surface of 40 square feet, and if the wind moves at the rate of 15 miles an hour (which is the velocity of ordinary winds), your windmill will have one horse power, if you give the same twelve revolutions per minute,

T. C., of N. H.—The pressure of the water in a tube or vessel on the bottom or sides of the same depends entirely upon the vertical hight of the column of water above the bottom. If you take two pipes of the same size, one being double the length of the other, but coiled, so that it stands just as high as the former one, and if both are filled with water, the pressure of the water on the bottom of both pipes will be the same, notwithstanding the coiled pipe contains double the quantity of water. The water exerts a pressure not only on the bottom, but also on the sides of the pipe, and as the sides of the coiled pipe have twice as much area as the sides of the straight pipe, it requires double the quantity of water to obtain the same pressure on every part of the coil at the same level with corresponding parts of the straight pipe.

Planing Machine, Pomeroy, Ohio.—A correspondent writing from this place fails to sign his name, and hence we are unable to answer him by mail. The invention does not seem to possess any patentable novelty.

M. H. C., of Ohio.—There is no "patent water" used in the tempering of mill-picks. Cold water is as good a hardening agent as you can use.

Christian Miller.—We have received your letter, expressing surprise at our delay in answering your two letters of previous date. We have already addressed two letters to you in reply at Philadelphia, Pa., and if this is not the proper direction, please so to inform us, and we will try again. The fault is wholly with you in not giving us your proper address.

E. C., of Boston—Honey soap can be made as follows: Take one pound of curd soap, cut it into thin slices: put it into a saucepan with a pint of sweet milk, let it simmer over a fire till the soap is melted, then add two tablespoonfuls of honey, and simmer it again until the whole is well mixed: scent it with oil of lavender or bergamot, and put it into shapes.

W. A. M., of Mass.—An alloy of tin and copper resembles silver, if the copper only amounts to about ten per cent. Common German silver is composed of nickel 1 part, zinc, 1, and copper, 1. A very white, hard German silver is composed of iron 1 part, nickel, 10, and copper, 20. Melt the iron and copper first, then add the nickel, and zinc last. You can silver brass or copper with a galvanic battery, and a cyanide of silver solution.

C. C., of Ill.—Three balls placed at different distances on the same radius of a wheel can be balanced by a weight placed on the opposite radius only, and if you place three balls of four ounces each at the distances of 3, 6 and 9 inches from the center, you can balance them by placing a weight of 12 2-3 ounces at a distance of five inches from the center, and on the opposite radius.

C. A., of Me.—The space traversed by a falling body in successive seconds is in direct ratio as the odd numbers, so that the body falls over 16 feet in the first, three times 16 in the second, and five times 16 in the third, seven times 16 in the fourth second, and so on.

C. F. R., of Vt.—We do not profess to give advice in cases of disease, although we are not wholly ignorant of the nature of remedies useful to be employed in many cases. You had better consult some skillful physician about your case; in the meantime, however, it will do your rheumatic affection no harm to use the following remedy:—Take equal parts each of spirits of wine, turpentine, sweet niter, and oil of juniper. Mix these well together. Let the lotion be well rubbed in on the part affected. Ten drops may be taken at bed-time in a glass of cold water. This has helped others, and it may help you; but different constitutions require different treatment, and hence the importance of consulting with a physician of skill and common sense.

J. F. H., of Ga.—A steam pipe 2¼ inches outside diameter is too small for an 11-inch cylinder. You will have to keep the pressure much higher in the boiler than in the cylinder. You can dissolve india-rubber by cutting it into shreds, and steeping it in warm turpentine or naphtha kept in a close vessel.

J. N. C., of Ind.—There is no substance known to us like glass in its more important particulars—transparent, colorless, pure and clean, first liquid, and afterwards solid.

W. E. S., of Ohio.—The cast iron of which plow points are made of in your region must be very poor, "cold-short" as it is called. Those made in this city are of the best cast iron. If you use the best quality of pig metal, you will have good castings, not otherwise.

G. S. S. H., of Cal.—If you were born in the United States, and have removed into the Canadas, and become a subject of the British crown, you are in the eyes of the law an alien. It would therefore be necessary for you to reside in the United States one year next preceding the application, and make oath of your intention to become a citizen of this country before you could avail yourself of the right to apply for a patent on the payment of the $30 fee.

G. R., of N. H.—To prevent your old tin roof from leaking, we advise you to make up a cement of equal parts of white lead, whiting and clean dry sand thinned to the consistency of thick cream with linseed oil. Put it on with a brush like paint, filling up the seams carefully, and when dry it will be substantial and durable.

A. Y. McD., of St. Louis—A pound of steam at 215° will raise five and a half pounds of water at 38° to 213° of temperature, there being 954° of latent heat in the steam. Steam at 212° cannot raise water to a higher temperature than itself. No process has yet been discovered to convert heat of quantity into heat of intensity. The paragraph which you have sent us published in a cotemporary is incorrect.

Money received at the Scientific American Office on account of Patent Office business, for the week ending Saturday, April 16, 1859:—

S. H., of Ill., $25; L. S. W., of Ct., $30; E. E. A., of Ala., $25; W. & K., of N. Y., $30; T. F. W., of La., $500; W. H., of Ill., $25; E. H., Jr., of N. Y., $250; J. C., of Pa., $30; F. G., of Mich $20; H. K. S., of Mass., $33; J. P. H., of Va., $30; T. B. C., of Del., $30; J. P. B., of Ill., $30; G. N. H., of N. Y., $30; M. & B., of N. Y., $30; C. R. M. H., of N. Y., $35; J. C. S., of Mass., $62; H. & M., of Ct., $35; D. R. E., of Pa., $25; D. H. VanD., of N. Y., $30; S. C. B., of N. Y., $55; H. N., of N. Y., $30; T. & D., of Iowa., $30; D. C., of N. Y., $60; L. C., of N. Y., $25; F. T., of N. Y., $30; T. H. T., Jr., of Mo., $30; L. P., of N. Y., $50; H. A., of N. Y., $30; M. A., of N. Y., $25; W. & W., of N. Y., $30; C. F. A. of N.H., $55; A. M., of Mich., $50; M. D., of Ala., $50; H. B., of R. I., $25; W. S. S., of N. Y., $30; G. A., of N. Y., $30; D. G. F., of Wis., $25; B. D., of Ct., $25; M. DeC., of Ind., $25; E. T., of N. Y., $25; H. R., of Cal. $30; E. L. G., of Ct., $30; M. & H., of Ind., $30; W. C., of Iowa, $25; T. H., of N. Y., $55; J. B., of N. J., $25; L. S. B., Jr., of N. Y., $25; J. W. L., of N. J., $40; J. A., of N. Y., $60; D. L., of Mass., $30; F. P. P., of Ct., $30; H. P. C., of Ill., $27; E. B., of N. Y.. $30; J. P. A., of Ct., $45; W. C. G., of Ct., $30; J. P., of Cal., $30; W. W., Mich., $25; J. M., of Cal., $25; T. R., of N. Y., $25; G. S., of N. Y., $30; J. G. L., of N. Y., $140; E. B., of N. Y., $55.

Specifications and drawings belonging to parties with the following initials have been forwarded to the Patent Office during the week ending Saturday, April 16, 1859:—

E. H. A. of Ala.; G. G. B. of Mass.; H. & M. of Ct.; D. L. of Mass.; L. C. of N. Y.; W. W. of Mich.; J. P. A. of Ct.; H. K. S. of Mass.; M. A. of N. Y.; A. M. of Mich.; G. J. of N. Y. (2 cases); H. H. E. of Ill.; L. S. B., Jr. of N. Y.; D. R. E. of Pa.; M. DeC. of Ind.; B. D. of Ct.; T. & D. of Iowa; J. M. of Cal.; J. P. C. of N. Y.; E. B. of N. Y.; S. H. of Ill.; D. D. of R. I.; C. R. M. H. of N. Y.; H B. of R. I.; H. P. C. of Ill.; D. G. F. of Wis.; B. T. of N. Y.; J. R. of N. J.; S. C. B. of N. Y.; J. W. L. of N. J.

Literary Notices.

The Travels of Drs. Barth and Livingston—J. W. Bradley, Philadelphia.—The works of both these gentlemen are so very voluminous that, although very interesting, few persons have time or inclination to wade through them. To spread abroad, therefore, the information they contain, this publisher has had them carefully edited and condensed into the form of two separate octavo volumes, each sold by itself, so that if the inquirer wishes to read of North Central Africa, he should read Dr. Barth, and of South Africa, Dr. Livingston. While the latter traveled among pagans and wild tribes, the former associated with learned Mahometans, and lived in populous and industrious cities. These books are full of matter fresh to the American reader, and no household should be without one or both of them, that they may learn something of those wondrous countries beyond the sea.

Life of Dr. Kane and other Explorers.—By. S. Smucker, A. M.—J. W. Bradley, Philadelphia, Pa.—The other explorers whose lives are here told are J. C. Fremont, John Ledyard, Charles Wilkes, and M. C. Perry. The book is well written in a pleasant vein, and the author has evidently a true appreciation of the nobleness of exploring, as opening up new fields for commerce, science, and art. All the incidents are graphically pictured, and due praise given to the heroes of the work.

Public and Private History of Louis Napoleon. By. S. Smucker, A. M.—J. W. Bradley, Philadelphia.—To undertake to write the history of a man so celebrated as Napoleon III. while he yet lives, in an impartial and truthful manner, is no slight undertaking, and it is seldom that it is successfully done. This author, however, has given us a history true, without prejudice, and in a simple style that must have a charm for all readers.

Sixty Years' Gleaning from Life's Harvest.—By John Brown.—D. Appleton & Co., New York.—The author of this pleasant book is proprietor of the billiard rooms at the University of Cambridge, England, and consequently has seen a great amount of what is called "life." But more than this he has been a soldier, a sailor, an actor, and a shoemaker, and his observations of men and manners seen from these different points of view form this readable volume. It will well repay an attentive perusal.

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Consultation may be had with the firm, between nine and four o'clock, daily, at their principal office, 37 Park Row, New York. We established, over a year ago, a Branch Office in the City of Washington, on the corner of F and Seventh streets, opposite the United States Patent Office. This office is under the general superintendence of one of the firm, and is in daily communication with the Principal Office in New York, and personal attention will be given at the Patent Office to all such cases as may require it. Inventors and others who may visit Washington, having business at the Patent Office, are cordially invited to call at our office.

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Circulars of information concerning the proper course to be pursued in obtaining patents through our Agency, the requirements of the Patent Office, &c., may be had gratis upon application at the principal office or either of the branches.

The annexed letters from the last two Commissioners of Patents we commend to the perusal of all persons interested in obtaining patents:—

MESSRS. MUNN & CO.—I take pleasure in stating that while I held the office of Commissioner of Patents, MORE THAN ONE-FOURTH OF ALL THE BUSINESS OF THE OFFICE came through your hands. I have no doubt that the public confidence thus indicated has been fully deserved, as I have always observed, in all your intercourse with the Office, a marked degree of promptness, skill, and fidelity to the interests of your employers.

Yours, very truly, CHAS. MASON.

Immediately after the appointment of Mr. Holt to the office of Postmaster-General of the United States, he addressed to us the subjoined very gratifying testimonial:—

MESSRS. MUNN & CO.—It affords me much pleasure to bear testimony to the able and efficient manner in which you discharged your duties as Solicitors of Patents while I had the honor of holding the office of Commissioner. Your business was very large, and you sustained (and, I doubt not, justly deserved) the reputation of energy, marked ability, and uncompromising fidelity in performing your professional engagements.

Very respectfully, your obedient servant,

J. HOLT.

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ORNAMENTAL.—I WISH TO CORRESPOND with a party engaged in the manufacture of ornamental designs in bronze or any other metal. Those wishing to add a new and beautiful feature to their business would do well to address me at Youngstown, Ohio. WM. POWERS. 33 4t*

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TO RENT—IN ONE OF THE BEST LOCAtions in the State, premises consisting of a Foundry, Machine, Blacksmith and Boiler Shops, with Tools, Patterns, Lathes, and Planers, all new and in good condition, particularly well adapted to all kinds of boat and engine work, and a general jobbing business; also, several fine rooms, with power suitable for any manufacturing business either in wood or iron with an amount of good docking. The premises are in the city of Buffalo, and will be rented in whole or in part to suit customers. Address E. & B. HOLMES, Buffalo, N. Y. 33 2*

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STEAM ENGINES, SLIDE LATHES, Planing Machines, Drills, &c.—Orders taken for all descriptions of machines for working in wood or iron. Address CHARLES H. SMITH, Machinery Depot, No. 135 North Third st., Philadelphia. 33 6*

STEPHENS' PATENT COMBINATION Rule of Boxwood and Hard Rubber, combining a Rule, Square, Level, Bevel, Indicator, &c. For illustration, see SCIENTIFIC AMERICAN, May 26, 1858.

"It combines more usefulness in a small, and withall in a very simple form, than anything of the sort ever before invented."—[New York Tribune.

Sold by all the principal hardware dealers in the United States. L. C. STEPHENS & CO., 33 2* New Hartford, Conn.

WARREN'S TURBINE WATER WHEEL—Improved and patented by A. Warren and E. Damon, Jr. The vast number of these wheels now in operation, and the invariable success attendidg them, is the best evidence of their advantages over ordinary wheels in the economy of water power. The American Water Wheel Co. will send to applicants (enclosing two stamps) their pamphlet, containing engravings of turbines and a treatise on hydraulics. Address, A. WARREN, Agent, No. 31 Exchange st., Boston Mass. 32 9t*

REYNOLDS' CONCENTRAL PRESSURE Water-Wheel—Patented March 24, 1857. Adopted by the Hydraulic Canal Company at Oswego as their standard for high per centage of effect, combined with the utmost economy in the use of water. It is simple in construction, therefore cheap and durable. Send for a pamphlet, containing particulars, testimonials, &c., which will be sent free to any address by 33 5t* TALLCOT & UNDERHILL, Oswego, N. Y.

GRAPHITE.—THE HERON MINING COMpany, owners of the best and the largest known Graphite Mines, (those in Wake County, North Carolina,) have their Graphite, for Founders and for Lustre, prepared in the best manner, and also made into paint by their agents in New York, Messrs. D. F. TIEMANN & CO., No. 45 Fulton street. After long experience, the Heron Mining Company, with the best Graphite, and prepared as none others know how, are now supplying the market through their agents above named, who are in possession of the most ample testimonials of the superiority of this paint over all others. 33 4t*

INGOT COPPER, SPELTER, BANCA TIN, Lead, Antimony, Babbitt Metal, Mount Hope Cut Nails, Ames' Shovels and Spades, for sale by JOHN W. QUINCY & CO., No. 98 William st., New York. 13 12ebw*

J. A. FAY & CO., WORCESTER, MASS make a beautiful and strong Surfacer, the clipper having a wrought iron head, steel bearings, Fitts' patent feed works, and new knife adjuster, decidedly the best thing out. Mortising, Tenoning, and Molding Machines, as usual. 29&33 3*

MACHINERY.—S. C. HILLS, NO. 12 PLATT street, New York, dealer in Steam Engines, Boilers, Planers, Lathes, Chucks, Drills, Pumps; Morising, Tenoning, and Sash Machines, Woodworth's and Daniel's Planers Dick's Punches, Presses and Shears; Cob and Corn Mills; Harrison's Grist Mills; Johnson's Shingle Mills; Belting, Oil, &c. 38 eow

D. JACOBUS, NO. 138 WOOSTER STREET, New York, Agent for Fay & Co., Worcester, Mass.—Wood-working Machines for Planing, Tenoning, and Molding. Also, Ellis' Blind Slat Tenoner, and Crosby's Mitering Machine, and various other machinery, can be seen in operation at the above place. 30 4*

SAW GUMMING MACHINES—COMBINING Punches and Shears for Re-toothing all kinds of Saws, Punching the Ends and Cutting Lengthwise. Also, Saw Upsets and Upset Swedges, and other Saw Tools. By the improvements I have made in these tools a gang saw can be gummed in one minute, and fitted up for use in ten minutes. Manufactured and kept on hand by G. A. PRESCOTT, Sandy-Hill, N.Y. 30 4t*

A SUBSTITUTE FOR LEAD PIPE.—A New and Valuable Article, viz., a Semi-Elastic Pipe or Hose which can be used with pumps of any kind, for suction, forcing, or conducting water in any and every place where pipe is required. Its properties are:—It imparts no deleterious effects to the water, nor in any way effects it unpleasantly after a few days' use; it is sufficiently elastic to be bent into curves, and it is unaffected by heat or cold: it will not burst if water is frozen into it; it is not injured by exposure to the sun or atmosphere; it is composed of ingredients indestructible, except by fire. Samples of it have been tested by use for three years, without the least apparent decay, and it can be made to bear pressure as high as 4001bs. to the square inch. Price not far from that of lead pipe. Circulars with prices and particulars furnished by the manufacturers. BOSTON BELTING COMPANY, corner of Summer and Chauncey streets, Boston, Mass. 31 13*

CLAY RETORTS—THOS. HOADLEY, PATentee of the Patent Pyro-clay Gas Retorts—manufactory Nos. 33 and 34 Front st., Cleveland, O. 24 12*

HOLMES, BOOTH & HAYDEN, 21 CHAMbers street, New York, have now in store from their manufactory a complete assortment of Sheet Brass, Copper and German Silver; Brass, Copper and German Silver Wire; Silver Plated Metal, Copper and Brass Rivets, &c., to which they invite the attention of the trade and manufacturers generally, 29 6*

SOLUBLE GLASS.—TO BUILDERS, ROOFers, Masons and Railroad Contractors.—The Soluble Glass—Silicate of Soda or Potash—with the application of Chloride of Calcium, will make everything fire and waterproof, hardens walls, and produces the hardest roofing cement. For sale by DR. L. FEUCHTWANGER, 143 Maiden lane.

Platina, Cadmium, Oreide, Fluorspar, Oxyd of Manganese, and Aluminum. N. B.—Treatise on Fermented Liquors, with 1,000 Chemical Recipes. 29 6*

LEONARD & CLARK'S PREMIUM LATHES and Planers, Machinists' Tools of all kinds, Portable Engines, at 11 Platt street, New York. 29 6*

EDWARD CONROY'S PATENT CORK-CUTTING MACHINE.—This machine, which is fully and accurately described in the Scientific American, Vol. XII., No. 46, is now in operation at the patentee's factory, No. 94½ Utica street, Boston, Mass. It is capable of cutting 10 gross of corks per hour, of all sizes, from the smallest homœopathic to the largest jug and demijohn corks. This it effects by means of its adjustable screw, without any expense or loss of time, while its self-feeding and sharpening devices insure the constant motion of the machine, and the most economical and best means of keeping it in order. State rights for sale; or the patentee would be willing to form a company in New York, which should possess the exclusive power to run the machines in that city and State, and in all the Southern States. For particulars address EDWARD CONROY, 94½ Utica street, Boston, Mass. 31 4t

WANTED—A WHEELWRIGHT, AN ENERgetic mechanic, thoroughly and practically acquainted with the manufacture of hubs, spokes, felloes and wheels by machinery, to go South, to organize and superintend a manufactory of this kind. Address, with references, LANE & BODLEY, Cincinnati, O. 32 3*

PATENT COMPOSITION BELTS—PATENT PACKING—The Company have on hand and are ready to supply all orders for their superior Composition Machine Belting. They are proof against cold, heat, oil, water, gases, or friction, and are superior to leather in durability, and much cheaper in cost. The composition gives to these belts uniform durability and great strength, causing them to hug the pulley so perfectly that they do more work than any other belts of the same inches. The severest tests and constant use in all sorts of places during the last 14 months has proved their superiority, and enables the Company to fully guarantee every belt purchased from them. Manufacturers and mechanics are invited to call, examine, and test these belts. The Patent Packing for planed joints is in every way superior to any other article ever used for that purpose. A liberal discount allowed to the trade. "New York and Northampton Belting and Hose Co." R. A. STERN, Treasurer, 217 Fulton st., New York. 30 13

DRAINING TILE MACHINES OF THE most approved construction, manufactured by R. R. GIFFORD, Albany N. Y. 32 13*

THE SCIENTIFIC AMERICAN SIGNS, for Munn & Co., were painted by Ackerman & Miller. Refer to the Commercial Agency, McKillop & Wood, Park Buildings. All communications for signs, banners, or other ornamental work, attended to with dispatch. ACKERMAN & MILLER, 101 Nassau st., next to the New York Herald Office. 27 3m

FELT FOR STEAM BOILERS, PIPES, ship sheathing, marble-polishers, jewellers, and calico printers' use, manufactured by JOHN H. BACON, Winchester, Mass. 31 26*

PERPETUAL MOTION!—THE UNDERsigned has recently invented and patented a wheel, which is both a wind-wheel and a water-wheel. This wheel is remarkably cheap, simple, and strong; and when used as a water-wheel, requires no dam whatever. Any one who wishes to judge of this wheel for himself can easily make a model of it. Take a number of thin strips of light wood, say ten inches long, and three quarters of an inch wide, bore a hole through the center of each of them, and place them on a common axle; then spread them out like a fan, so that they may slightly overlap each other. Toy-makers will find that a small model of this wheel forms a cheap and beautiful toy for children. For particulars, address W. H. BENSON, Montgomery, Ala. 30 4*

WHITMAN'S TURBINE WIND WHEEL.—Territorial or shop rights for sale. For particulars, inquire of the inventor, E. WHITMAN, at South Abington, Mass. 32 12*

THE MINIMUM FOUNTAIN PUMP—PATented Nov. 1, 1858.—This pump raises, conveys and ejects water, &c., to any given hight or distance. It requires but half the power that other pumps, &c., do; in short, its many advantages give it the mastery of the age. Rights for sale. A. L. KEEPORTS and GEO. PALMER, Littlestown, Pa. 32 3*

THE PLOW BEAM PLANER AND MAchine Spoke Shave for Crooked Work and Cross-Grain Lumber will chamfer, round, butt, and smooth irregular and plane surfaces. All kinds of woodworking machinery. J. A. FAY & CO., Worcester, Mass. 23&36 2*

FOR SALE VERY LOW—SIX FIRST-CLASS Iron Planers, 8 and 12 feet; two Steam Engines, 25 and 30-horse. Z. P. GOODYEAR, New Haven, Conn. 27 7*

CORLISS' PATENT STEAM ENGINES—On application, pamphlets will be sent by mail containing statements from responsible manufacturing companies where these engines have been furnished, for the saving of fuel, in periods varying from 2¾ to 8 years. (The "James' Steam Mills," Newburyport, Mass., paid $19,734 23, as the amount saved in fuel during five years. The cash price for the new engine and boilers was but $10,500.) These engines give a perfectly uniform motion under all possible variations of resistance. Two hundred and fifty, varying from about 20 to 500-horse power, are now in operation. Boilers, shafting, and gearing. CORLISS STEAM ENGINE CO., 15 26* Providence, R. I.

GEER CUTTING ENGINE FOR SALE—New, and not surpassed by any other made. Will cut any kind, size, and number of teeth, from 6 feet diameter, 8 inch face, and 370 teeth, down to the smallest size, and is guaranteed by the makers perfectly accurate. Will be sold (to cover advance) at 20 per cent under maker's price. CHASE & TOWNER, Baltimore, Md. 35 5*

BOILER FLUES FROM 1 ¼ INCH TO SEVEN inches outside diameter, cut to any length desired, promptly furnished by JAMES O. MORSE & CO., 76 John st., New York. 31 13

OIL! OIL! OIL!—FOR RAILROADS, STEAMERS, and for machinery and burning. Pease's Improved Machinery and Burning Oil will save fifty per cent, and will not gum. This oil possesses qualities vitally essential for lubricating and burning, and found in no other oil. It is offered to the public upon the most reliable, thorough and practical test. Our most skillful engineers and machinists pronounce it superior and cheaper than any other, and the only oil that is in all cases reliable and will not gum. The Scientific American, after several tests, pronounced it "superior to any other they have ever used for machinery." For sale only by the inventor and manufacturer, P. S. PEASE, 61 Main st., Buffalo, N. Y.

N. B.—Reliable orders filled for any part of the United States and Europe. 27 13

STEAM ENGINES, STEAM BOILERS, Steam Pumps, Saw and Grist Mills, Marble Mills, Rice Mills, Quartz Mills for gold quartz, Sugar Mills, Water Wheels, Shafting and Pulleys. The largest assortment of the above in the country, kept constantly on hand by WM. BURDON, 102 Front street, Brooklyn, N. Y. 27 tf

HARRISON'S 20 AND 30 INCH GRAIN Mills constantly on hand. Address New Haven Manufacturing Co., New Haven, Conn. 27 13

MACHINE BELTING, STEAM PACKING, ENGINE HOSE.—The superiority of these articles, manufactured of vulcanized rubber, is established. Every belt will be warranted superior to leather, at one-third less price. The Steam Packing is made in every variety, and warranted to stand 300 degs. of heat. The hose never needs oiling, and is warranted to stand any required pressure; together with all varieties of rubber adapted to mechanical purposes. Directions, prices, &c., can be obtained by mail or otherwise, at our warehouse, NEW YORK BELTING AND PACKING COMPANY. JOHN H. CHEEVER, Treasurer. Nos. 37 and 38 Park Row, New York. 27 13

THE AUBIN VILLAGE GAS-WORKS WERE erected last year by one city and several village companies to their entire satisfaction. Towns having only fifty consumers of gas can rely on the stock-paying dividends; and if one hundred, 10 per cent will be guaranteed. For references, apply to the Company, No. 44 State street, Albany, N. Y. 28 tf

CARY'S CELEBRATED DIRECT ACTING Self-Adjusting Rotary Force Pump, unequalled in the world for the purpose of raising and forcing water, or any other fluid. Manufactured and sold by CARY & BRAINARD, Brockport, N. Y.

Also for sale by J. C. CARY, 240 Broadway, New York City. 24 19t

"They are without a rival."—Scientific American.

WHEELER & WILSON'S SEWING MACHINES—Price greatly reduced. Send for a circular. Office, No. 505 Broadway, New York. 27 tf

HOLLY'S PATENT ROTARY PUMP and Rotary Engine has no valves or packing, and is the most simple, durable, and effective Force Pump in use, as numerous certificates in our possession will prove. Also manufacturers of the celebrated Rotary Steam Fire Engines, with which we challenge the world, as to portability, time of getting at work, low pressure of steam used, quantity of water discharged, and distance forced. There are now four of these machines in use in the city of Chicago, and one in the city of Boston, Mass. Third class engine weighs about 7,000 pounds, and forces a 1¼-inch stream 300 feet, or two 1-inch streams 180 feet, or one 1¼-inch stream 240 feet, with a steam pressure of from 40 to 60 pounds. Generates a working pressure of steam in from 4 to 6 minutes from cold water. Descriptive catalogues of pumps, engines, &c., sent to all applicants. SILSBY, MYNDERSE & CO., 28 13 "Island Works," Seneca Falls, N. Y.

IRON PLANERS AND ENGINE LATHES of all sizes, also Hand Lathes, Drills, Bolt Cutters, Gear Cutters, Chucks, &c., on hand and finishing. These tools are of superior quality, and are for sale low for cash or approved paper. For cuts giving full description and prices, address "New Haven Manufacturing Co., New Haven, Conn." 27 13

WOODWORTH PLANERS—IRON FRAMES to plane 18 to 24 inches wide—at $90 to $110. For sale by S. C. HILLS, 12 Platt street New York. 27 tf

HOYT BROTHERS, MANUFACTURERS OF patent-stretched, patent-riveted, patent-jointed, Oak-Leather Belting; Store, 28 and 30 Spruce street. Manufactory, 210, 212, 214 and 216 Eldridge st., New York. A "Treatise on Machinery Belting" is furnished on application, by mail or otherwise—gratis. 29 13*

CALIFORNIA AGENCY FOR PATENTS—WETHERED & TIFFANY, San Francisco, will attend to the sale of patent rights for the Pacific coast. References:—Messrs. Tiffany & Co., New York; Wethered, Brothers, Baltimore; George W. Bond & Co., Boston. 23 13*

LARD OIL MANUFACTURERS—MESSRS. WM. SKENE & CO. manufacture purified Lard Oil of the best quality, for machinery or burning, in Bullett st., four doors below Main, Louisville, Ky. 25tf

BUTCHER'S IMPERIAL CAST STEEL FILES—The subscribers keep constantly on hand a very large assortment of the above celebrated files, which are acknowledged to be unequaled in quality, and to which the attention of railroad companies, engineers, and machinists is invited. BARTON & SCOTT, 25 26 No. 18 Cliff st., New York.

SAWTELL PATENT ELASTIC SPINNING FLYERS, manufactured by the Ames Manufacturing Company of Chicopee, Mass.—In these flyers the nozzle is cast on the arms, by which the two metals are firmly united together, but the wires are not heated annealed and weakened as in the old process. The flyers have been in use nearly five years, giving perfect satisfaction, and are undoubtedly a better article than can be had at any other place in the country. Spinning rings and spindles also supplied on the most favorable terms. Address AMES MANUFACTURING COMPANY, Chicopee, Mass. 31 4t*

HYDRAULIC JACKS OF 15, 20, AND 25 Tuns power—Prices, $100, $115 and $130 each. Hydraulic Presses of 15 tuns power, price $150. For sale by JAMES O. MORSE & CO., 76 John and 29, 31 and 33 Platt sts., New York. 25 3mos*

Science and Art.

Will Saltpeter Explode?

This ponderous question, after all that has been said and done *pro* and *con* to decide it, is still involved in smoke and confusion. A circumstance occurred, not long ago, in London, which really goes to prove that this *old salt* will explode in spite of all that has been said to the contrary. In the report (for 1858) of Mr. Braidwood, the Superintendent of the London Fire Department, it is stated that a fire took place in one of the dock warehouses last summer, and "when the flames reached the saltpeter, a violent explosion took place, by which the center of the building was blown to atoms, the division walls forced in, and the floors of the adjoining warehouses set on fire." Mr. Braidwood appears to have settled this question for London, although it is well known that saltpeter may be roasted over an open fire without raising a single puff.

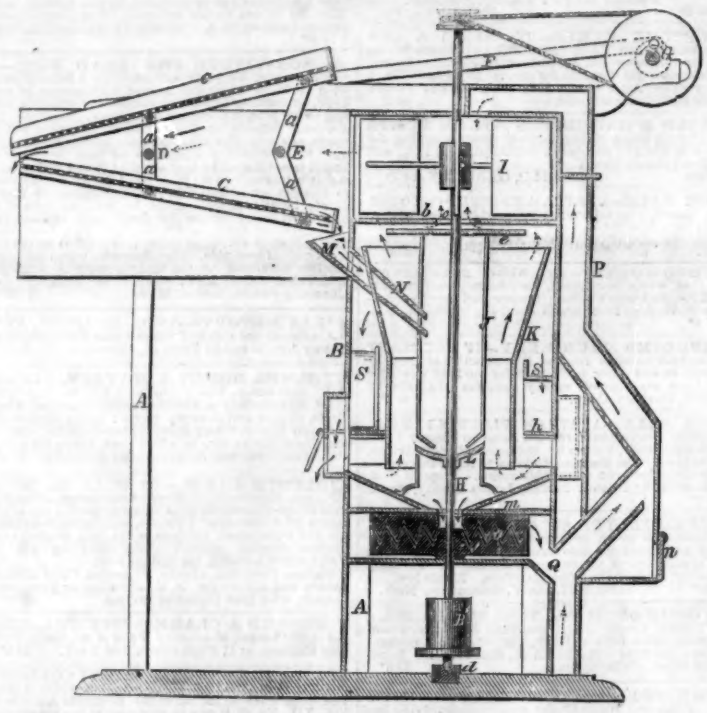
Improved Smut Machine.

The good things of this life are few that have not their counterbalancing and relative evils; indeed, we should not enjoy the good had we not the contrast of the evil to stimulate our appreciation and give, by opposition, a zest to the enjoyabilities of existence. Wheat, the most useful of all grain, has its drawback, the smut, which, whether it be a fungus or an insect nest, as some say, is remarkably disagreeable, and renders the wheat useless until it is removed. To remove this many machines have been devised, as our readers are well aware, and we now present before them another which possesses many advantageous points of difference from those in common use. The great peculiarity is that it separates the smut-balls whole and does not break them, thus preventing the smut getting into the eyes of the wheat, from which it is very difficult to remove it. The same scourers which clean wheat and rye, and all kinds of grain, will also remove the hull from buckwheat. The machine is admirably constructed and avoids all jar, the central shaft running with great ease and freedom. Having said thus much by way of introduction to the machine invented by J. Tobin, of 206 Mulberry street, Newark, N. J., we will at once proceed to describe its operation by the aid of the sectional illustration.

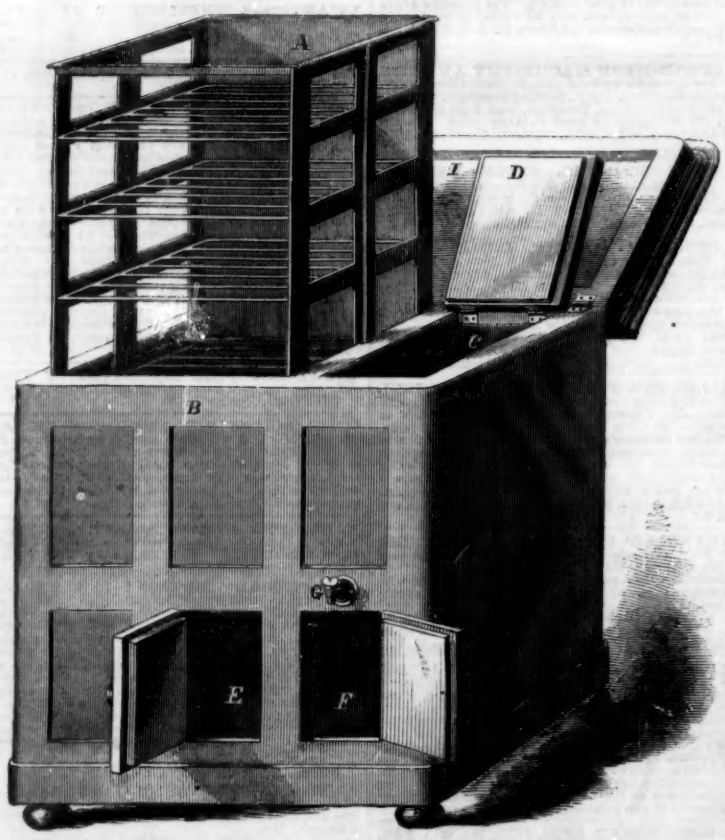
Motion is given the shaft, H, the plate, *j*, basin, L, and fan, J, by the belt-wheel, B'. The grain to be cleaned falls on the uppermost screen, C, which is coarse enough to allow the grain to pass through, but rejects large foreign substances. The grain then falls in the lower screen, C, which allows fine dust to fall through it, but sends the grain into hopper, M. These two screens are supported by bars, *a*, that are pivoted on the horizontal bars, D E, so that they are capable of a reciprocating motion, which they derive from the arm, F, connected with a crank on the shaft of the pulley, G. The grain, while passing through the screens, is subjected to a blast from I, which blows away light foreign substances. The spout, N, receives the grain from M, and conducts it into the cylinder, J, from which it falls on to the basin, L, which, by its rotation, throws the grain from its edge in a circular sheet and slightly upwards, so as to subject it most favorably to the action of the blast. Another hopper conducts the grain to the scourers, O, the upper one of which, *m*, is fixed while the lower one, *j*, rotates; this gently loosens all the dirt that may adhere to the ear, and the tip and blow, without injuring the ear, and forces the grain into the spout, Q, being subjected to a blast that passes up the spout, P, and carries away all the dirt that has been loosened by the scourers. The other parts of the machine are soon described. A is the framing and B the outer case; S are inclined spouts attached to the inner sides of B, between the plates *b* and *b*, and having flaps, *n*, at their ends by which the dirt can fall out when the machine stops or there is weight enough of dirt behind the flaps to overcome the pressure of the air outside, which keeps them shut. *e* is the opening into the fan box, and the plate, *e*, and case, K, tend to keep up an even and regular current of air through the machine. The arrows show the direction of the grain and blast. We have seen one of these machines in operation, and perceived the smut-balls come perfectly unbroken from it while the grain fell out in a beautiful state of cleanliness; in fact, a miller possessing one of these requires no other.

Space bids us stay our pen, and therefore we can only say that its many merits and great superiority can be proved, by an examination of its construction, by any person acquainted with such machinery. It was patented April 27, 1858, and any further information can be obtained by addressing the inventor as above.

TOBINS' SMUT MACHINE.



McAVOY'S REFRIGERATOR.



There is much heat-abstracting power exerted, or cooling effect lost, by the opening and closing of the ordinary refrigerator; for example, ice is placed in a refrigerator and in melting it abstracts the heat from the contained air, thus condensing it and rendering it heavier than the surrounding fluid. Of course when the door is opened to remove any article of food or to place anything in to be cooled, out rushes this cold air, and its place is instantly taken by the warm surrounding air, which has to be cooled at the expense of the ice. If this cold air could be kept in and no ice spent in cooling fresh quantities of air each time the door was opened, a great saving of ice would be effected, and consequently a saving in that tender part of human economy—the pocket. In the invention which forms the subject of our illustration this is done in a simple and ingenious manner.

A shelf-frame, A, is placed in a proper non-conducting case provided with the usual ice-box, C, and this shelf-frame is supported by cords and pullies concealed in the case, so that when it is raised to place anything upon its wire shelves or take anything off of them, the cold air in the refrigerator is not disturbed but keeps in the case, forming a kind of well of coldness into which the shelf-frame can be immersed. In the ice-chamber, C, is placed a stone water-jar, the tap of which is seen at G. E is a door for cleaning out the bottom of the case, and F is a wine or butter closet distinct from the other part of the refrigerator. The ice-chamber is closed by a door, D, and a similar door closes over A when it is down in the case; a close-fitting top, I, covers the whole, which, when finished and decorated, forms a sightly piece of furniture, suitable for a dining-room.

The inventor is H. L. McAvoy, of 14 Light street, Baltimore, Md., who may be addressed for further information. The patent is dated March 8, 1859.

Concrete Houses.

MESSRS. EDITORS:—I notice an error and an omission in the communication on "Concrete Houses," published in No. 32 of the present volume of the SCIENTIFIC AMERICAN. It says that my roof is "covered with spruce plank, *lined* over;" it should read "tinned." Again, the types state that "the first floor has dining-room, bedroom, and kitchen;" the words "parlor, hall," being omitted. The first statement conveys but a very vague idea of the kind of roof I use; and the second or additional room and hall make quite an important item in the accommodations of the house.

Yours truly,

F. G.

Huntington, N. Y.

No less than forty-one fires were caused in the city of London last year, by throwing down unextinguished cigars. We have no doubt but a greater number of conflagrations occur annually in New York from similar causes.

MECHANICS

INVENTORS, MILLWRIGHTS, FARMERS AND MANUFACTURERS.

FOURTEENTH YEAR

PROSPECTUS OF THE

SCIENTIFIC AMERICAN.

This valuable and widely circulated journal entered upon its FOURTEENTH YEAR on the 11th of September.

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